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# Incidence, Survival & Distribution of Cancer in Alberta

1964 to 1988

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ALBERTA CANCER BOARD

Division of Epidemiology
and Preventive Oncology

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## The Alberta Cancer Board

The Alberta Cancer Board was established in 1968 with the passage of the Cancer Treatment and Prevention Act. Until then, cancer services had fallen under the general mandate of Alberta Health. As the frequency of all cancers increased, and cancer medicine or oncology became more advanced and specialized, the Government of Alberta recognized the importance of passing a Cancer Act and establishing an independent Board to assume responsibility for cancer across the province.

The Alberta Cancer Board offers programs in both northern and southern Alberta. The Northern Alberta Cancer Program is offered through the Cross Cancer Institute in Edmonton and through associated clinics in Grande Prairie, Peace River, Fort McMurray and Red Deer. The Southern Alberta Cancer Program is offered through the Tom Baker Cancer Centre in Calgary and through clinics in Lethbridge and Medicine Hat.

The Government of Alberta funds the Alberta Cancer Board, basing its annual funding on government fiscal policies and on Alberta Cancer Board budgets submitted annually. The Alberta Cancer Board also receives support for research and education from the Alberta Heritage Savings Trust Fund, Alberta Heritage Foundation for Medical Research, the Universities of Alberta and Calgary, industry, and national and international research granting agencies.

The Board generates some revenue from the treatment of out-of-province patients and from other incidentals, while corporations, community groups and individuals offer support through the Alberta Cancer Foundation which handles charitable donations to the Board.

## Acknowledgements

A publication like this, covering 25 years of data collection, cannot be the result of the efforts of only a few authors*. Without the continuous efforts of the dedicated staff of the cancer registry unit in the Division of Epidemiology & Preventive Oncology, who collected, coded and entered the data in the computer, there would not have been anything to write about. Having data in the computer is one thing, retrieving the data from the data base is something else. The programmer-analysts have done a great job in making the retrieval possible and performing some of the analyses that were required for this publication.

The patience of the secretarial staff, Marilyn Spencer, Janice Smolski and Sharon Benko, in typing the various drafts of the text is acknowledged with special thanks. Heather Jenkins spared everyone much embarrassment and frustration by meticulously proof-reading the draft. The errors that remain are the responsibility of the authors.

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* The contents of this monograph are based on thousands of documents received from pathologists, clinicians, hospital medical records departments and Vital Statistics Alberta.

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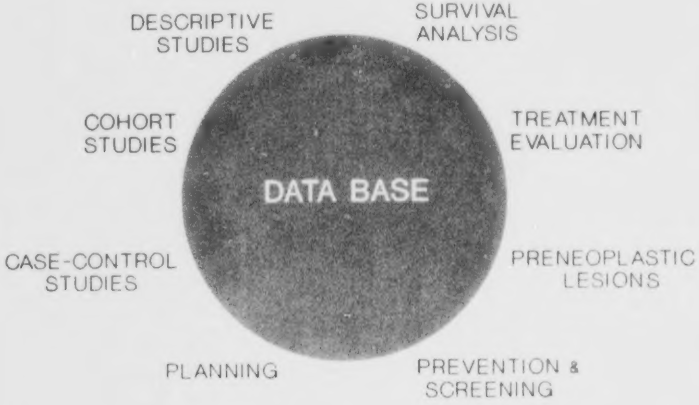
# INTRODUCTION

# THE CANCER REGISTRY

The Alberta Cancer Registry is operated by the Division of Epidemiology and Preventive Oncology of the Alberta Cancer Board. Data on patients with cancer in Alberta have been collected since the early 1940s when a file-card data collection system was initiated to assist in the administration of payments for services rendered to cancer patients. From this modest beginning, the registry has evolved to become a controlled mechanism for the collection of clinically relevant information on all persons diagnosed with cancer in Alberta.

USES OF A CANCER REGISTRY DATA BASE



Since 1968 it has been mandatory that all private and hospital laboratories send any pathology reports that deal with malignancies to the registry. After receiving the pathology report, a registration form is sent to the attending physician requesting information about the patient and the tumour. For patients who attend a facility operated by the Alberta Cancer Board, registry coders abstract data directly from clinical charts. Data on patients who are not referred to a cancer facility and on those who fail to report are obtained from relevant documents that are sent to the registry. Unfortunately this means that for patients not seen at cancer facilities, some information is not available (for example, the stage of disease at diagnosis is not known for many cases). The main sources of information for the cancer registry are pathology reports, hospital discharge summaries, OR reports and death certificates.

Collected data include identifying and demographic items, tumour-related items, treatment items and follow-up information. All data are collected, coded and entered into the data base by trained health record technicians. Problems are referred to the registry supervisor and/or the director of the division. When necessary, problems are discussed with pathologists. Routine quality control of data entry is carried out and entered data are edited for validity, consistency and plausibility.

Until 1989 the Ninth Revision of the International Classification of Diseases (ICD-9) was used to code the topography of the malignant tumours (all ICD-7 and ICD-8 codes were converted to ICD-9 in 1979). Since January 1989 topography has been coded according to the conventions of the ICD-0. Initially morphology of the tumours was coded according to SNOD/SNOMED but since 1979 it has been coded according to the guidelines of the ICD-0-M(orphology) system. The data in this report are given in ICD-9 codes.

Almost 50 years after its initiation, the Alberta Cancer Registry contains records of approximately 200,000 patients with cancer. Extensive quality control programs and internal edits are in place and well-trained coding staff abstract the data from the original patient files. This results in an extremely useful resource for planning and research as illustrated in the diagram. It is our sincere hope that this document will contribute to an even more widespread use of the cancer registry data base, since we firmly believe that *registration for the purpose of registration alone is useless.*

# ORGANIZATION AND LAY-OUT OF THE MONOGRAPH

This monograph presents of analyses of the data collected over 25 years by the Alberta Cancer Registry. Both historical trends and the current status of the more common cancer types are presented. Emphasis is placed on incidence rates, the geographic distribution of incident cases, their survival experiences and the trends in survival rates. Historical trends are presented by displaying the fluctuation of rates over the interval of 1964 to 1988 while the current status is illustrated by presenting annual rates averaged over the recent five year period (1984 to 1988). Unless otherwise specified, rates are expressed as cases per 100,000 population at risk. Ranges of numbers (eg 35 to 39) are to be interpreted as inclusive.

It is intended that the monograph should display information in a way that fosters hypothesis generation. Both allusion to causal mechanisms and statistical inference play small roles in this volume. Although the potential exists to inundate the reader with *P*-values, this has been avoided. Not only is it inconsistent with the objective of the monograph, but it fails to justly represent the data set. Statistical tests involving few cases (eg uncommon tumour sites or sparsely populated geographic regions) are less likely to achieve significance, even when observed differences are great. With the large number of potential statistical tests in a volume of this sort (analyses were made between gender, age group, tumour site, geographic location of the patient and year of diagnosis) numerous 'statistically significant' differences would have been observed, even though they occurred by chance alone. Rather, if the analyses presented here provide a gateway to new avenues of rigorous investigation, then the primary purpose of the monograph will be met.

The monograph is divided into three chapters and appendices. Each chapter begins with a title page while chapter sub-headings appear at the top of each page. Definitions of statistical terms used in the monograph follow in this chapter as does a discussion of possible sources of error in the data set, potential biases in the analyses and limitations to the interpretation of graphs and figures in the volume.

The Provincial Overview chapter presents analyses of incidence, geographic distribution and survival for combined sites. Other comparisons are made between sites to illustrate the more commonly occurring cancers and the ones causing greatest mortality.

The largest chapter in the monograph presents a set of graphs and figures on each of 28 groups of related cancer sites. The ICD-9 codes included in each site group are presented in the text and a cross reference table appears as an appendix. Site groups include related in situ carcinomas except for cervical cancer which forms its own site group.

For each cancer site, a histogram presents recent (1984 to 1988) incident rates for each of 15 age groups. The trend of incidence for the 25 years between 1964 and 1988 is charted and the geographic distribution of recent incidence rates are mapped. The impact of the cancer on patients of different age is plotted in survival curves. One, two and five year survival rates experienced between 1964 and 1988 are shown to indicate any changes over time in the relative success rate in treating each disease.

Appendices appear both in print and in an attached microfiche. First in the volume is a listing of all ICD-9 classifications for cancer and the associated site grouping used in the monograph. The second appendix is a brief description of the geography and demography of Alberta and this includes a map of the population distribution in the province. The final appendix in print is a tabulation of each Statistics Canada census sub-division in Alberta cross-referenced to its mapped area.

The microfiche included with the monograph presents four sets of tables; incidence counts, incidence rates, mortality counts and mortality rates. Each set includes separate tables for each cancer site group and gender. Tables present data for different age groups and all 25 years from 1964 to 1988.

Two maps are included on one transparent overlay to permit orientation for the incidence maps. One overlay presents Alberta's network of roads and the larger urban centres. The other provides a legend to the 29 mapped areas.

# DEFINITIONS OF STATISTICAL TERMS

## Annual Age-Specific Incidence

Alberta residents who were reported to the Alberta Cancer Board as being newly diagnosed with cancer of a specific site were considered incident cases. To calculate the annual age-specific incidence, the number of incident cases in a specific age group formed the numerator while the denominator was the population at risk, namely the total provincial population in the age group. Annual age-specific incidence rates have been calculated for the 25 year period between 1964 and 1988 and are presented in the micro-fiche appendix. Mean annual values for the five years between 1984 and 1988 are shown in histograms. Rates are expressed as cases per 100,000 population at risk.

Incident cases are site-specific in the Alberta Cancer Registry, therefore the registry tallies tumours, not persons. Any individual who had more than one primary cancer was counted as an incident case for each new diagnosis.

## Annual Age-Standardized Incidence

Incidence rates were calculated for each year included in the analysis. Rates were age-standardized to the 1976 census population of Alberta using the indirect method and are expressed as cases per 100,000 population at risk. Age-standardization was conducted to remove any influence of a change in the demographic structure of the population that may have occurred over the 25 year interval.

## Mean Survival After Diagnosis by Age at Diagnosis

All patients diagnosed to have a specific cancer during the interval were grouped into one of seven age categories. The Kaplan-Meier survival analysis method was used to determine the survival experience for each age group. The Kaplan-Meier procedure accepts cases diagnosed at any time during the interval (permitting unequal lengths of follow-up) and includes as censored cases the survival experience of persons not yet deceased. Survival curves are presented to illustrate the proportion of each age cohort surviving at different times after diagnosis.

Median survival times were determined as the point in the follow-up period where the proportion of the sample surviving fell below 50%. Median survival times for the seven age groups are tabulated as are expected survival times. Expected survival times are the average remaining years of life for a person whose age equals the age at the mid-point of the age group. Average remaining years of life for Alberta were prepared by Statistics Canada based on the 1986 census.

## One, Two and Five Year Survival from Diagnosis

For each of the 25 years included in the analysis, it was determined what proportion of the cases diagnosed with cancer in that year survived at least one year, at least two years and at least five years. Deaths from any cause were included in this analysis, hence the rates present total mortality to cancer patients rather than cause-specific rates.

## Standardized Mortality Rates

The number of persons diagnosed as having cancer and dying from any cause in one year provided the numerator for standardized mortality rates. The denominator was the general population. The indirect method was used to age-standardize the rates to the 1976 Alberta population. Rates per 100,000 for all 25 years and 15 age groups are shown on the micro-fiche enclosure. Mean rates for the five year interval from 1984 to 1988 are shown in histograms.

## Trend Lines

On line graphs where trends for the 25 year period are shown, the least squares linear regression method was used to calculate the line of best fit through the data points. Numerical values of trend line slopes are presented in the associated text and it is reported if the confidence interval of the slope included zero. (The confidence interval is defined in this instance as the slope ± two standard errors of the slope.) The inclusion of zero in the confidence interval is indicated by a ↔ character enclosed in brackets. Confidence intervals which do not include zero are marked either ↑ or ↓ depending on whether the slope is positive or negative.

# CUT-POINTS FOR MAPPED INCIDENCE RATES

Mean annual age-standardized incidence rates were calculated for each of 29 geographic areas in the province using data from 1984 to 1988. Rates were age-standardized to the 1986 census population of Alberta. The 29 geographic areas are clusters of Statistics Canada census sub-divisions. A list of the sub-divisions contained in each mapped area is included in an appendix. Maps display the incidence rate for each mapped area according to a five-part scale; higher, high, average, low and lower. Geographic areas in which no cases occurred are shown separately.

Various approaches are available for establishing the cut-points between categories. One common approach involves the use of percentiles, where the rates for all geographic areas are ranked and the top 10% are considered highest, the next 20% are considered high and so forth. The greatest weakness of this method is that every map will contain the same number of areas in each category regardless of the actual distribution of rates for the mapped areas.

A second common method of establishing cut-points is to express the incidence rate of each mapped area as a ratio of the province-wide rate. Ratios exceeding particular bounds fall into different categories. This method has the advantage that it makes intuitive sense (areas with twice the provincial figure are high) but it suffers in instances where the provincial rate itself is large (doublings require progressively larger absolute differences when the base rate increases).

In this volume, only the maps presented in the Provincial Overview chapter adhere to the percentile method of establishing cut-points. Geographic areas were ranked from highest to lowest and classified whereby the top ranked 10% of mapped areas were higher, the next 20% were high, the middle 40% were average, the next 20% were low and the remaining 10% were lower.

All maps in the chapter on Site Specific Incidence and Survival were created using incidence ratios. Incidence ratios were classified according to a geometric division of the logarithmic scale. The logarithmic scale from 0.1 to 10 was divided into nine equal intervals with the middle intervals providing the basis of the classification scheme. Mapping categories are:

| Category | Incidence Ratio |
|---|---|
| Higher | > 2.15 |
| High | 1.30 - 2.15 |
| Average | 0.77 - 1.29 |
| Low | 0.46 - 0.76 |
| Lower | < 0.46 |

# LIMITATIONS TO THE INTERPRETATION OF RESULTS

As stated, the primary objective of this monograph is to display trends and patterns in a broader sense for the purpose of aiding general understanding and hopefully to stimulate the formation of more specific, testable hypotheses. The reader is cautioned that a large data set collected over an extended period of time is liable to a number of sources of error. Often the degree to which any error exists is impossible to determine and its influence on the analyses cannot be predicted.

In charting rates over a 25 year period, changes occurring due to altered diagnostic procedures or reporting practices are difficult to separate from true alterations in rates. Following are three examples of situations that could lead to spurious increases in apparent (or observed) incidence in the absence of any change to the *true* incidence rate:

- the introduction of screening techniques that permit the detection of disease at an earlier point in its natural history;
- improvements that increase the sensitivity of a diagnostic test to allow fewer cases to avoid detection (fewer false negatives); and
- improvements in access to health care that increase the number and frequency of contacts between the general population and the health care system, permitting better case detection.

Add to this changes in record-keeping thoroughness or coding algorithms and it is seen that unexpected influences could bias observed patterns.

In mapped information, migration can disguise cancer risks associated with hazardous exposures. The location where an incident case was residing at the time of diagnosis was used in analyses, even though exposure to a carcinogen may have occurred at a previous residence. Inherent to maps is the problem of providing excessive visual emphasis to large geographic areas that contain relatively small populations. Some mapped areas are particularly large and when these are classified as having higher incidence then the perception is offered that the higher rate affects an excessive portion of the province.

Throughout the volume, the analyses can suffer from problems of small numbers where the addition or subtraction of a few cases can substantially influence rates. Line graphs characterized by jagged peaks and troughs are often examples of this problem.

# PROVINCIAL OVERVIEW

# INCIDENCE

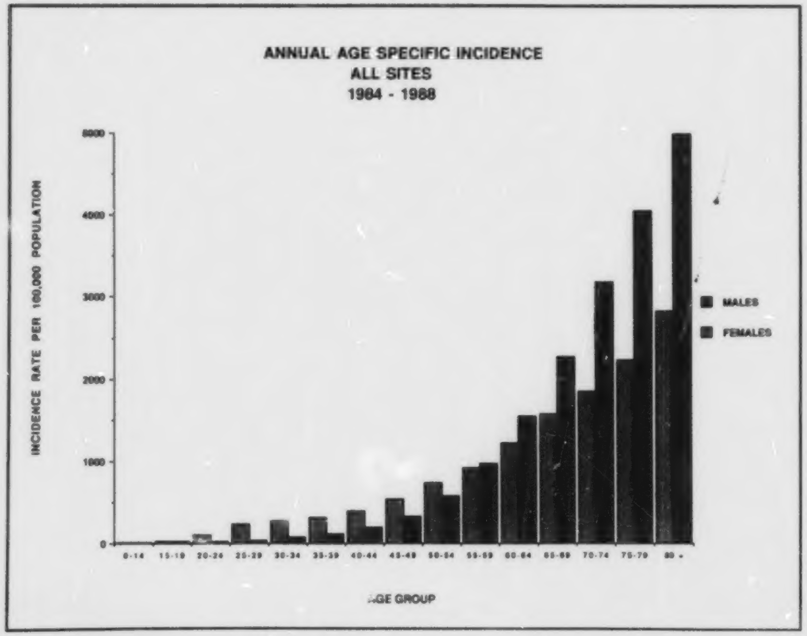
Cancer site groups have been combined to provide an overview of the total impact of cancer in Alberta. Incidence figures are displayed in two ways; firstly with all sites combined and secondly with non-melanoma skin cancer patients removed.

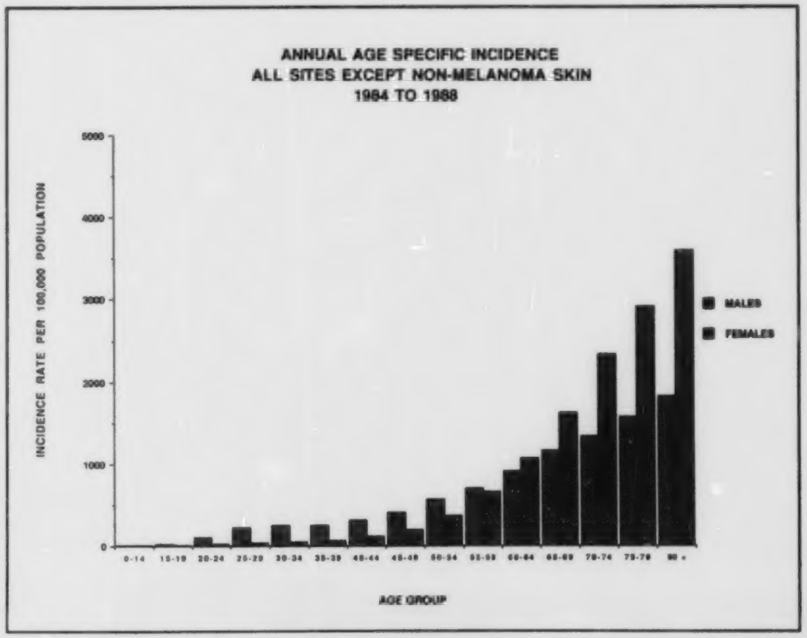
On average from 1984 to 1988, 10,028 cases of cancer were diagnosed each year. Female cases slightly outnumbered male cases (51.1% compared to 48.9%). Annual age-specific incidence rates, averaged for the years 1984 to 1988, are shown for females and males. Female incidence rates began at 11.8 per 100,000 in the youngest age group and increased across all ages to reach a maximum incidence of 2424.3. The differences in incidence between age groups was highest in absolute terms for older females although the largest proportional differences were seen for younger women where the incidence rate of 15 to 19 year olds was 114% higher than the rate of 0 to 14 year olds. The rate next increased by 308% and then 116%. Proportional increases thereafter were between 20% and 30%.

Male incidence rates began at 15.8 per 100,000 in the youngest age group and increased across all ages to reach a maximum incidence of 4985.6. Absolute differences were greatest between the oldest age groups. The largest proportional increase in incidence occurred between the 45 to 49 and 50 to 54 age groups where incidence rates increased by 75%.

Comparing females to males, incidence rates were similar in the two youngest age groups after which females rates exceeded male rates to the 50 to 54 age group. The largest proportional differences occurred in the 25 to 29 year age group where the female rate was 5.3 times that for males. In the oldest three age categories, male incidence rates were 1.8 times female rates.

Although the magnitude of rates decreased when non-melanoma skin cases were removed, the overall pattern of cancer incidence in various age groups remained unaltered. Incidence rates ranged from 11.6 to 1823.6 per 100,000 for females and from 15.4 to 3595.5 for males.





## COMBINED SITES

Age standardized incidence rates from 1964 to 1988 for all sites combined are shown. Female incidence was 248.1 per 100,000 in 1964 and in 1988 it was 379.3. The maximum incidence, achieved in 1985, was 419.6. The trend line for females has a slope of 6.31 (†). The trend line suggests that female incidence increased by one case every 1.9 months yielding a total increase of 57.5% in 25 years.

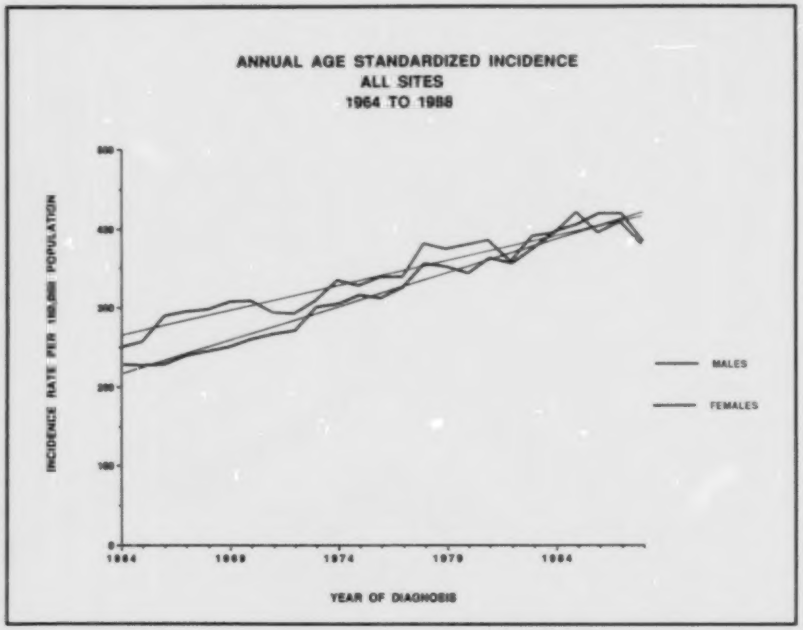
Male rates were 224.6 per 100,000 in 1964 and increased to 381.7 in 1988. The highest rate of 417.3 occurred in 1986. The slope of the trend line is 8.55 (†). The trend line indicates that male incidence increased by one case every 1.4 months yielding a total increase of 96.2% in 25 years.

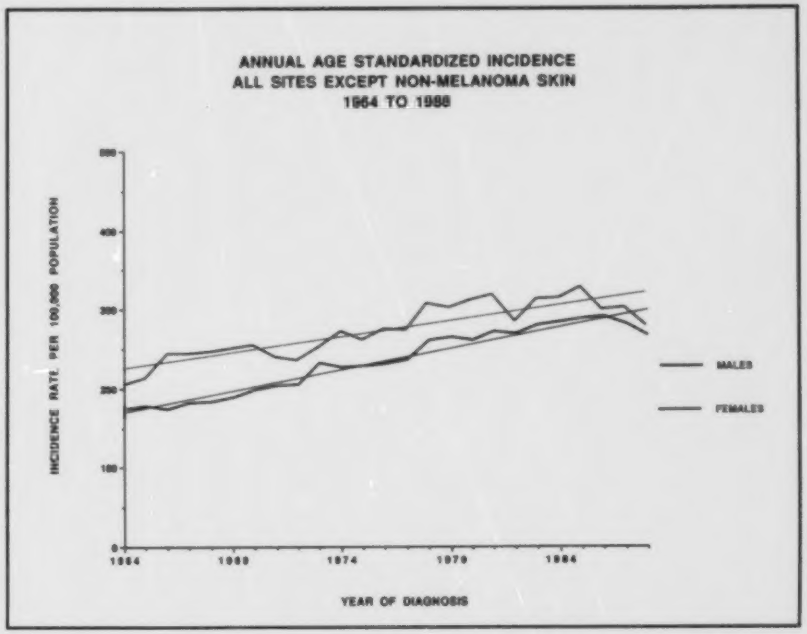
Female rates exceeded those for males throughout the period except in four of the final five years. The largest difference between female and male rates occurred in 1966 when female incidence was 61.1 cases per 100,000 higher.

When non-melanoma skin cancer is left out, incidence rates for females were 203.8 in 1964 and peaked at 327.9 in 1985. The trend line has a slope of 4.10 (†). From the trend line, incidence increased by 43.9% over the interval and increased by one case every 2.9 months. For males incidence was lowest at 171.6 in 1964 and peaked at 290.1 in 1986. The trend line has a slope of 5.42 (†). Incidence increased by one every 2.2 months and by 77.1% over the interval.

Mapped incidence rates are shown overleaf. The percentile method was used to classify geographic areas (10% Higher, 20% High, 40% Average, 20% Low and 10% Lower). Provincial rates for all sites were 408.8 for females and 382.6 for males. Mapped areas 11, 17, and 25 to 29 all had incidence that was below average for both females and males. Above average rates for both genders was found in mapped areas 4, 6, 7, 9 and 10.

The provincial rates for all sites excluding non-melanoma skin cancers were 323.3 for females and 279.3 for males. Below average incidence for both females and males was recorded in areas 2, 8, 26, 28 and 29. Above average rates for both genders was experienced in areas 1, 6, 7 and 19.

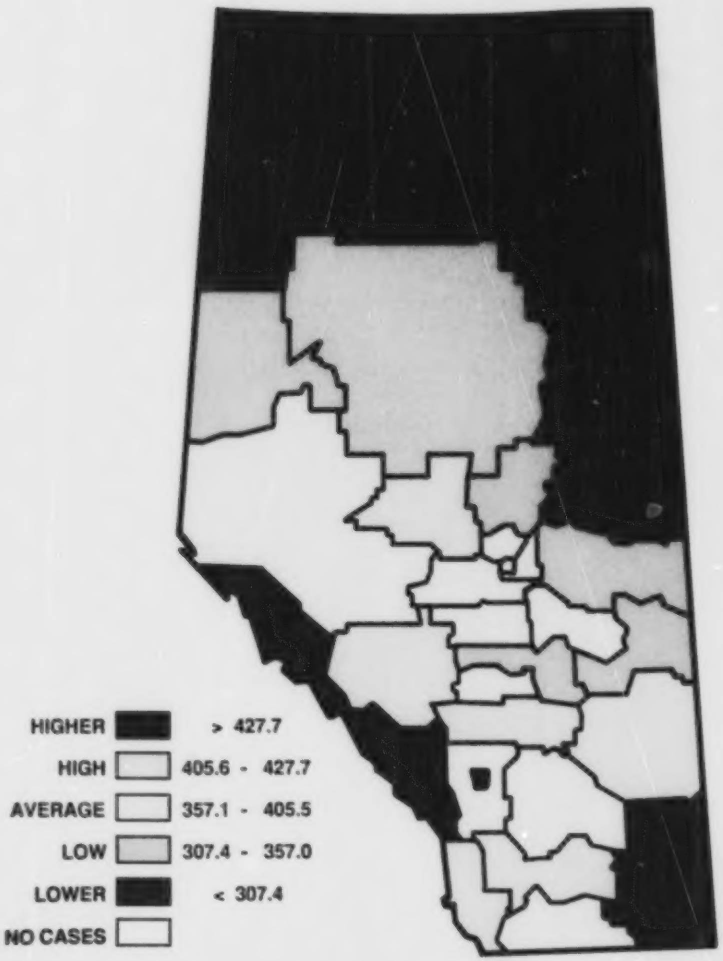

ANNUAL AGE STANDARDIZED INCIDENCE
ALL SITES
1964 TO 1988


ANNUAL AGE STANDARDIZED INCIDENCE
ALL SITES EXCEPT NON-MELANOMA SKIN
1964 TO 1988

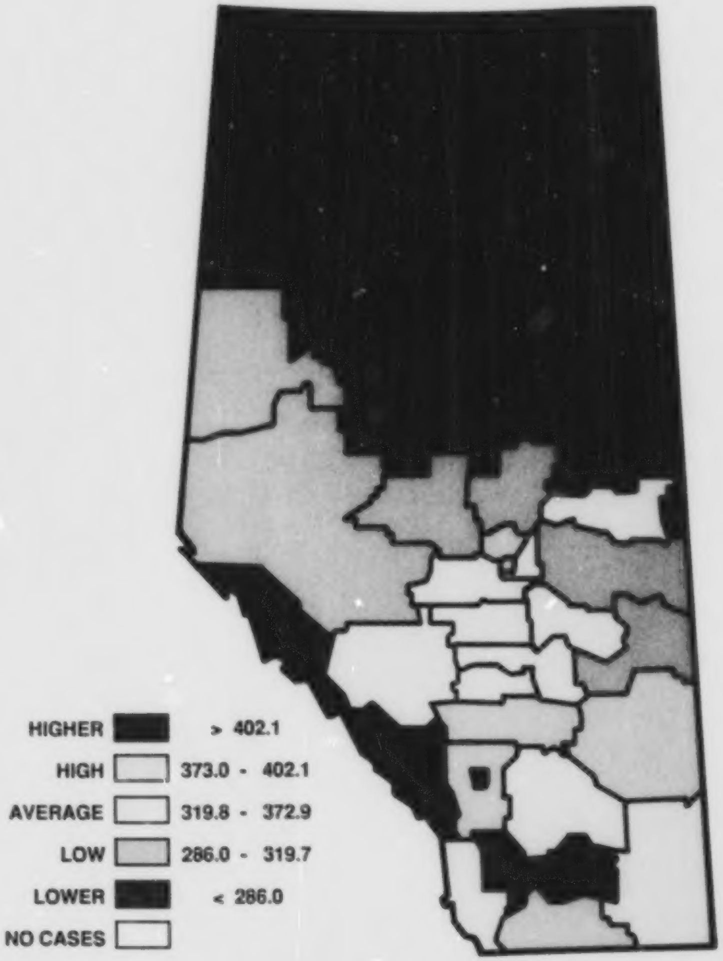
# GEOGRAPHIC DISTRIBUTION

## ALL SITES

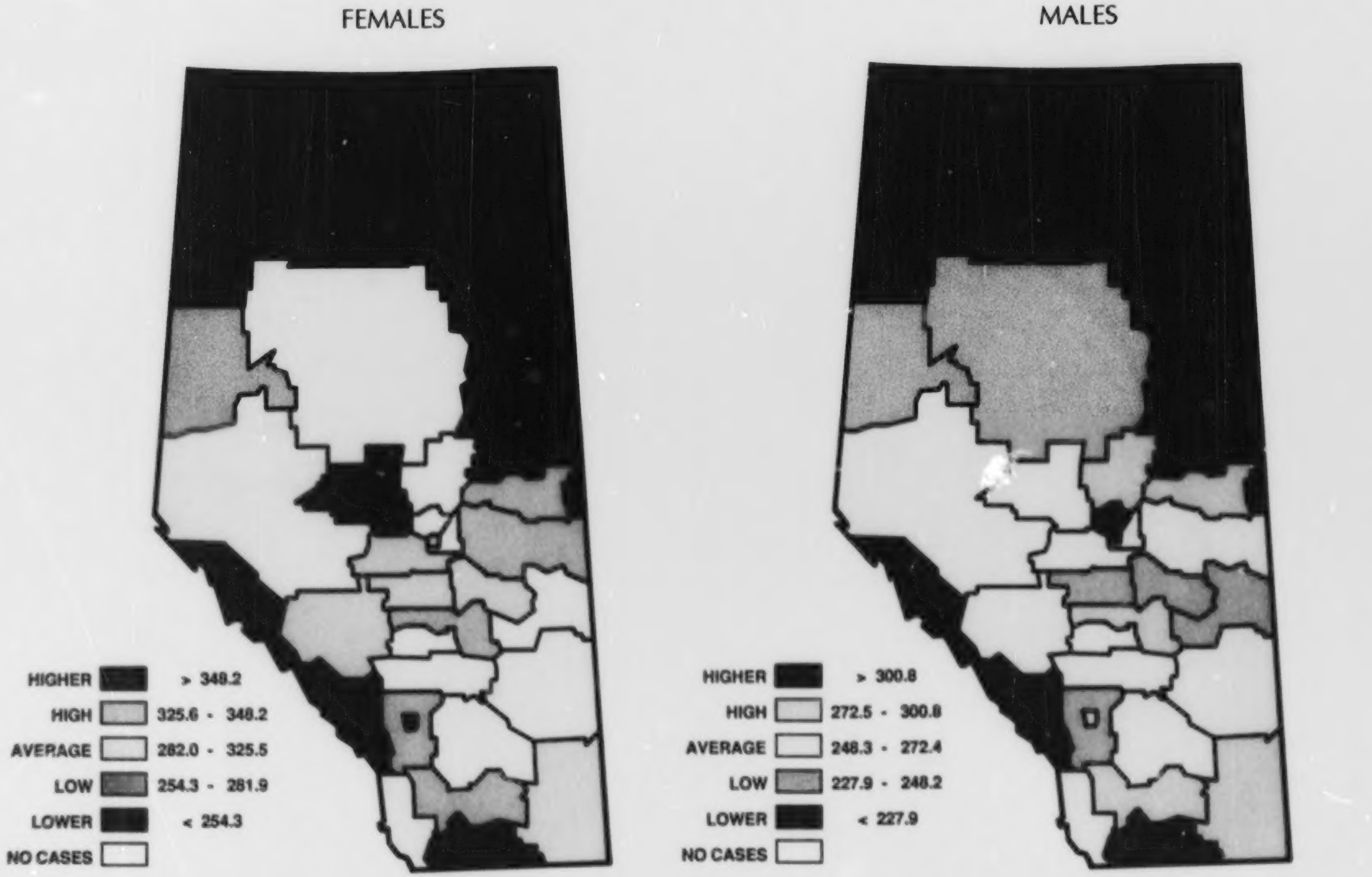
FEMALES


HIGHER ■ > 427.7
HIGH ☐ 405.6 - 427.7
AVERAGE ☐ 357.1 - 405.5
LOW ▨ 307.4 - 357.0
LOWER ■ < 307.4
NO CASES ☐

MALES


HIGHER ■ > 402.1
HIGH ☐ 373.0 - 402.1
AVERAGE ☐ 319.8 - 372.9
LOW ▨ 286.0 - 319.7
LOWER ■ < 286.0
NO CASES ☐

## ALL SITES EXCEPT NON-MELANOMA SKIN


FEMALES
HIGHER > 348.2
HIGH 325.6 - 348.2
AVERAGE 282.0 - 325.5
LOW 254.3 - 281.9
LOWER < 254.3
NO CASES
MALES
HIGHER > 300.8
HIGH 272.5 - 300.8
AVERAGE 248.3 - 272.4
LOW 227.9 - 248.2
LOWER < 227.9
NO CASES

# SURVIVAL

In analyzing survival outcomes for combined sites, in situ carcinomas and cases of non-melanoma skin were excluded because these cancers cause relatively little mortality. The survival experience of persons diagnosed with any other type of cancer is shown. Median survival times are tabulated for all age groups, except the youngest age groups who experienced median survival periods greater than 25 years. For all other age groups, median survival periods were much shorter than the anticipated life expectancy.

On average, females aged 35 to 64 lost approximately 17 years of life. With older age, the number of years lost decreased and reached a minimum for the oldest females. Median survival was 61% of the anticipated life expectancy for the 35 to 44 age group but this proportion diminished with increasing age and was lowest at 13% for females aged 85 years and older.

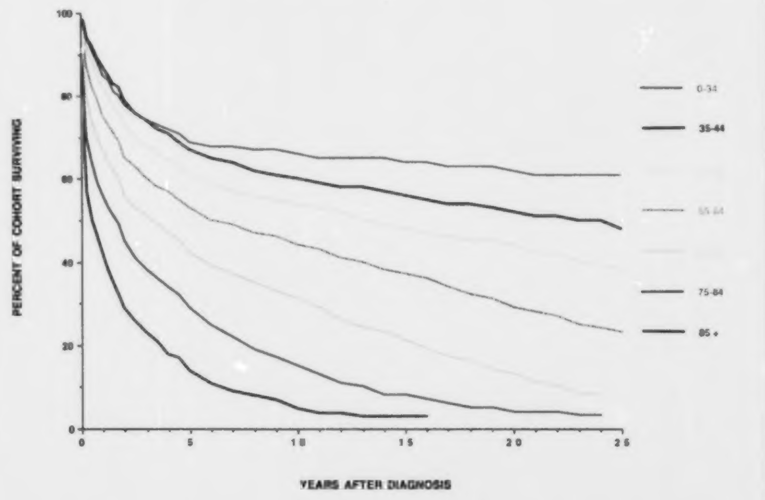
Males aged 35 to 44 lived on average 33% of their anticipated life expectancy. In all older age groups this proportion ranged between 12% and 17%. Males aged 85 years or older lived an average of only 9 months post-diagnosis.

Differences between females and males were greatest amongst persons aged 35 to 74 years where females lived much larger proportions of their anticipated life. Differences were less in the older age groups.

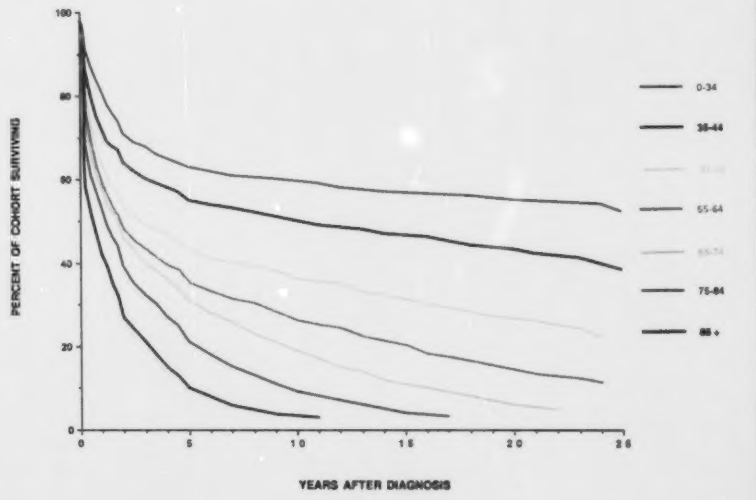
LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Expected Years of Life | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| **FEMALES** | | | | | |
| 0-34 | 4017 | -- | 63.9 | -- | -- |
| 35-44 | 5160 | 23.5 | 41.7 | 18.2 | 61% |
| 45-54 | 9129 | 15.0 | 32.4 | 17.4 | 46% |
| 55-64 | 12018 | 7.8 | 23.7 | 15.9 | 33% |
| 65-74 | 11821 | 4.0 | 15.8 | 11.8 | 25% |
| 75-84 | 8028 | 1.8 | 9.1 | 7.3 | 19% |
| 85+ | 2954 | 0.8 | 6.0 | 5.2 | 13% |
| **MALES** | | | | | |
| 0-34 | 3449 | -- | 57.7 | -- | -- |
| 35-44 | 2622 | 12.0 | 36.6 | 24.6 | 33% |
| 45-54 | 5976 | 3.5 | 27.3 | 23.8 | 13% |
| 55-64 | 12520 | 2.3 | 19.2 | 16.9 | 12% |
| 65-74 | 17129 | 2.0 | 12.3 | 10.3 | 16% |
| 75-84 | 12757 | 1.3 | 7.2 | 5.9 | 17% |
| 85+ | 3742 | 0.8 | 5.0 | 4.2 | 15% |

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES, ALL SITES



MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES, ALL SITES



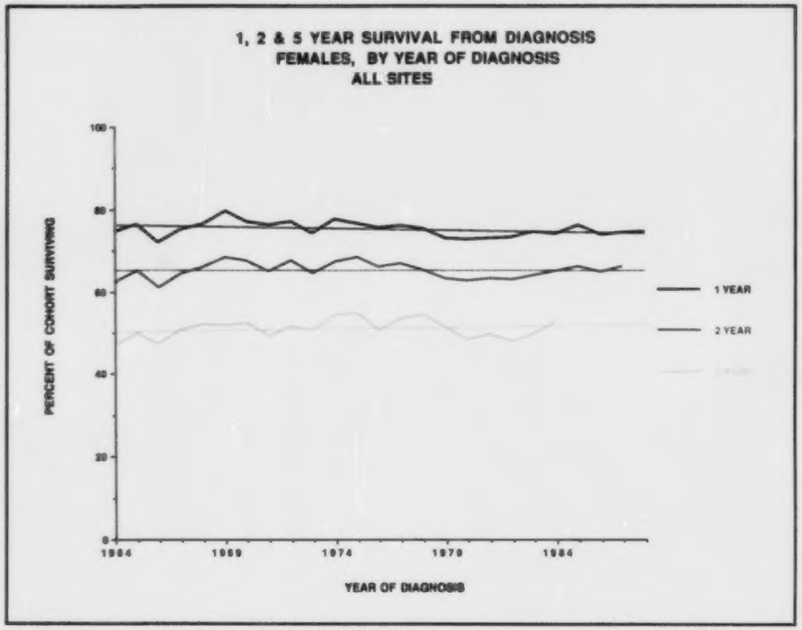
# COMBINED SITES

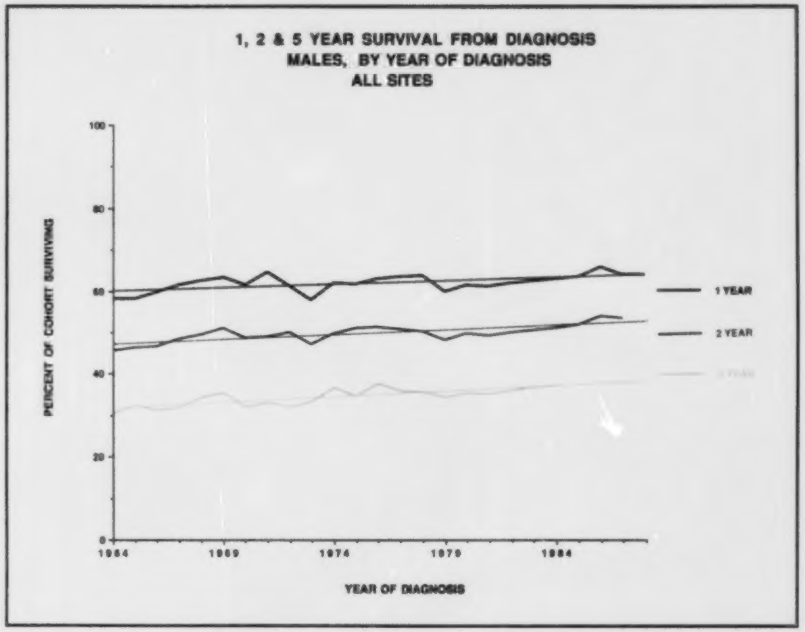
One, two and five year survival rates for all sites showed very little annual variation between 1964 and 1988, particularly in the later years of the period.

For females, one year survival rates varied between 72.0% and 77.4%. The trend line has a slope of -0.100 (↓) and indicates that one year survival was 76.1% in 1964 and decreased to 73.7% in 1988. Two year survival rates averaged 86% of associated one year rates. The trend line has a slope of -0.010 (↔) and indicates that two year survival was 65.1% in 1964 and decreased slightly to 64.9%. Five year survival averaged 68% of one year survival. The trend line has a slope of 0.047 (↔) and indicates that five year survival was 50.4% in 1964 and increased slightly to 51.4% in 1988.

For males, one year survival varied between 57.9% and 65.9%. The trend line for one year rates has a slope of 0.166 (↑) and indicates that one year survival was 60.0% in 1964 and increased to 64.0% in 1988. Two year survival was on average 80% of the associated one year rates. The trend line has a slope of 0.222 (↑) and indicates that two year rates increased from 47.2% in 1964 to 52.5% in 1988. Five year rates were approximately 55% of associated one year rates. The trend line has a slope of 0.268 (↑) and indicates that five year survival was 31.4% in 1964 and increased to 37.9% in 1988.

Female survival rates taken from the trend lines exceeded the corresponding rates for males at all times. In 1988, female one and two year survival rates were 1.2 times the male rates and the five year survival rate was 1.4 times higher.


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS
ALL SITES


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS
ALL SITES

# SITE COMPARISONS

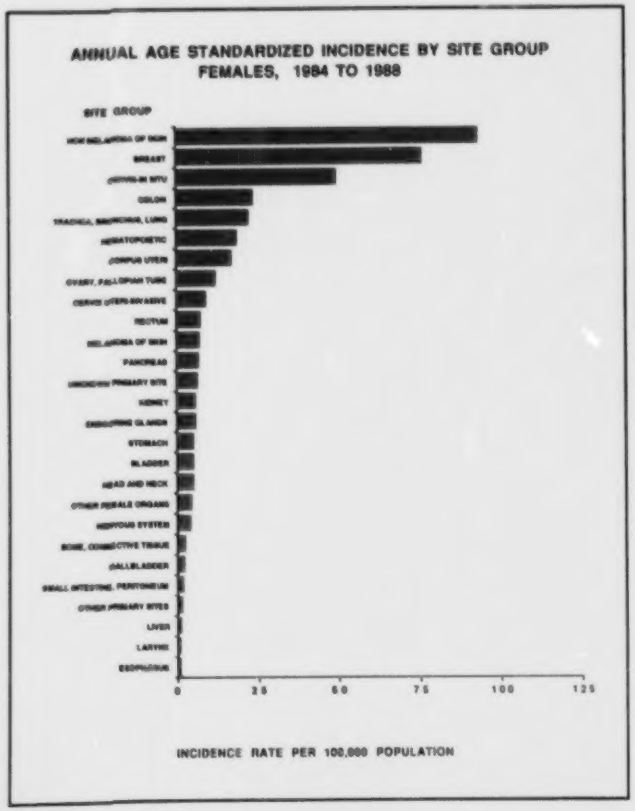
Age-standardized incidence rates averaged for the years 1984 to 1988 are shown. For both genders, non-melanoma skin cancers were the most frequently occurring (the incidence rate for females was 93.3 cases per 100,000 and for males it was 121.3). Breast cancer incidence was next highest for females (76.0), followed by cervix in situ (49.6), colon (23.9) and then cancers of the trachea, bronchus and lung (22.3).

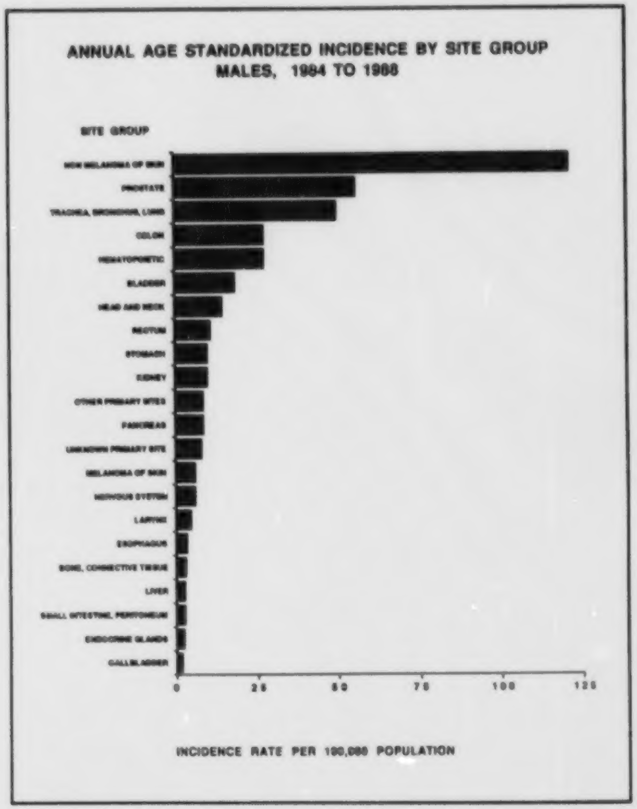
Important cancers for males included prostate (55.7), trachea, bronchus and lung (49.8), colon (27.6) and hematopoietic cancers (27.3). Besides gender-specific cancer sites, male incidence rates exceeded female rates for all site groups except endocrine, gallbladder and melanoma of the skin.

In absolute terms, an average of 10,028 new cancer cases were diagnosed per year between 1984 and 1988. When non-melanoma skin and cervix in situ cases are removed, then the mean number of female cases per year was 3,219 of which 29.6% were breast cancer cases. Of the 4,902 new male cases (excluding non-melanoma skin), 13.8% were diagnosed with prostate cancer.

For some cancer sites, the proportional difference in rates between females and males was large. With larynx, for example, the male incidence rate was 83% greater than the female rate. Other sites in which male incidence was much higher than the female rate were esophagus (the male rate exceeded the female rate by 262%), bladder (245%), the oral cavity site group (174%), liver (129%) and lung (123%).

Trachea, bronchus and lung is an interesting site group for temporal comparison. The trend for increasing female lung cancer is borne out in this data set where in the 1984 to 1988 time period cancers of the trachea, bronchus and lung ranked as fifth most common for females. In contrast, during the years 1964 to 1968, cancer of the trachea, bronchus and lung ranked twelfth for females. At both times, this cancer site ranked third most common for males.

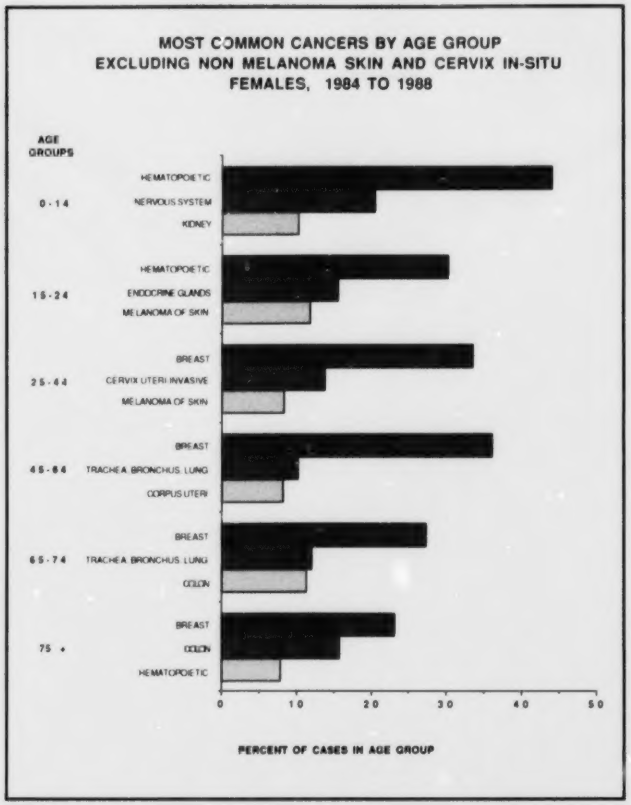

ANNUAL AGE STANDARDIZED INCIDENCE BY SITE GROUP
FEMALES, 1984 TO 1988

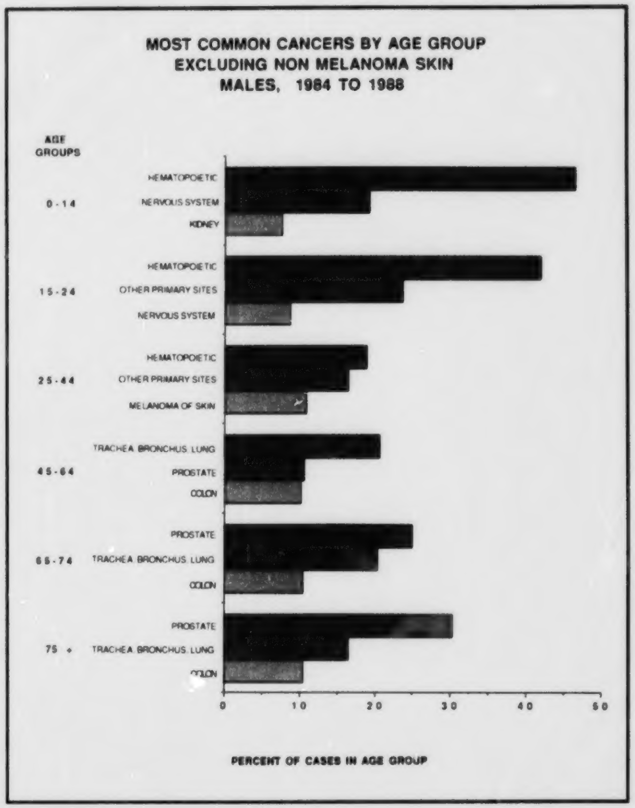

ANNUAL AGE STANDARDIZED INCIDENCE BY SITE GROUP
MALES, 1984 TO 1988

The relative importance of specific cancers changed for different age groups. These figures present the three most common cancers occurring in six different age groups. Non-melanoma skin and in situ cancers were excluded because of their relatively high frequency but low mortality. The figures display the proportion of all cancers occurring in the age group (after exclusion of in situ cancers and non-melanoma skin) that were of a specific site.

The rankings for females and males were the same in the youngest age group. Hematopoietic cancers were the most commonly occurring cancers in young people (43.9% of all female cancers in the 0 to 14 year age group with a corresponding figure of 46.6% for males). Hematopoietic cancers retained their importance in the 15 to 24 year age group, but for females, the most common cancer site at all other ages was the breast.

Hematopoietic cancers were the most frequent in the three youngest age categories for males. The importance of other primary sites was seen for males between the ages of 15 and 44 years due to the inclusion of male genital organs in this category. The three oldest age categories for males were all dominated by prostate, trachea, bronchus and lung followed by colon cancer.





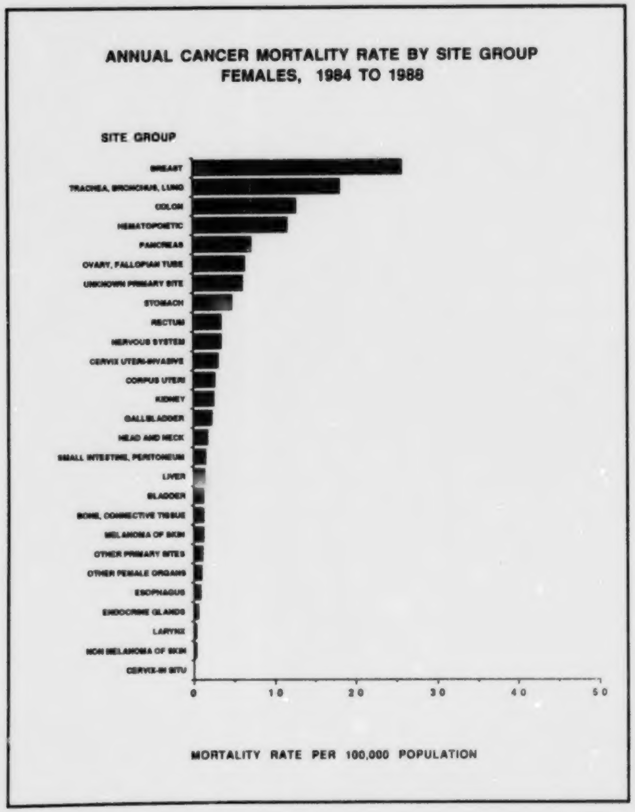
# SITE COMPARISONS

Standardized mortality rates averaged over the 1984 to 1988 period are shown. Besides the gender specific cancer sites that figure prominently (breast with a mortality rate of 25.8 deaths per 100,000 females and prostate with a rate of 17.6), cancers of the trachea, bronchus and lung were responsible for the most mortality for both females (the mortality rate was 18.1) and males (41.6). Other important site groups causing mortality for both genders were hematopoietic (the female rate was 11.7 and the male rate was 15.3), colon (12.7 and 12.1), pancreas (7.1 and 7.9) and stomach (4.8 and 8.5).

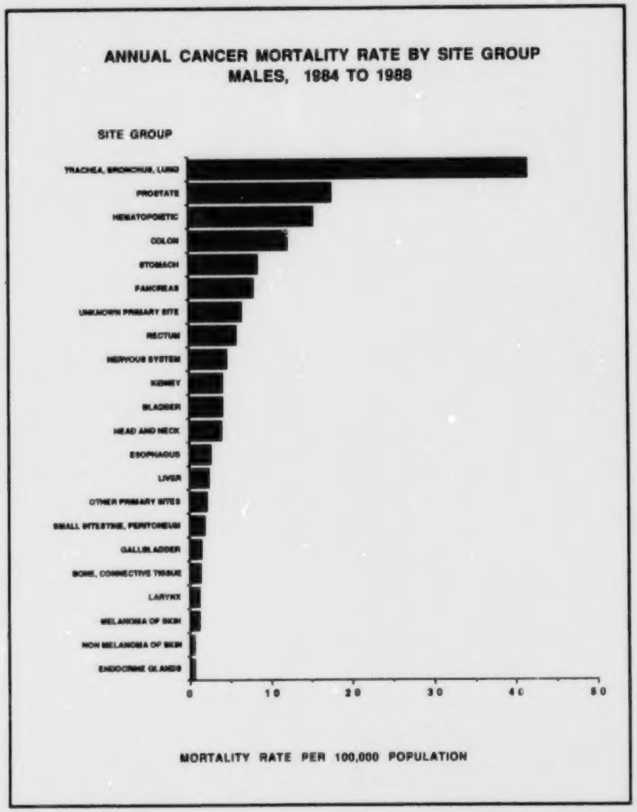
The lowest mortality rate for females was present in those diagnosed with in situ carcinoma of the cervix for which there were no deaths attributed during the 1984 to 1988 period and only two reported during the 25 years from 1964 to 1988. Non-melanoma skin cancers, and tumours of the larynx, endocrine glands, esophagus and other females genitourinary organs all had mortality rates less than one death per 100,000.

For males, endocrine glands and non-melanoma skin were the only site groups recording mortality rates less than one death per 100,000. Other site groups with low mortality rates were melanoma of the skin, larynx, bone and connective tissue, gall-bladder and small intestine and peritoneum.

The mortality rate for both genders and all site groups was 268.8 deaths per 100,000. The rate for males was higher than the female rate (147.1 and 121.7 deaths per 100,000 respectively). The toll in absolute terms amounted to 1,428 female deaths per year over the 1984 to 1988 period and 1,758 male deaths per year.



ANNUAL CANCER MORTALITY RATE BY SITE GROUP
FEMALES, 1984 TO 1988



ANNUAL CANCER MORTALITY RATE BY SITE GROUP
MALES, 1984 TO 1988

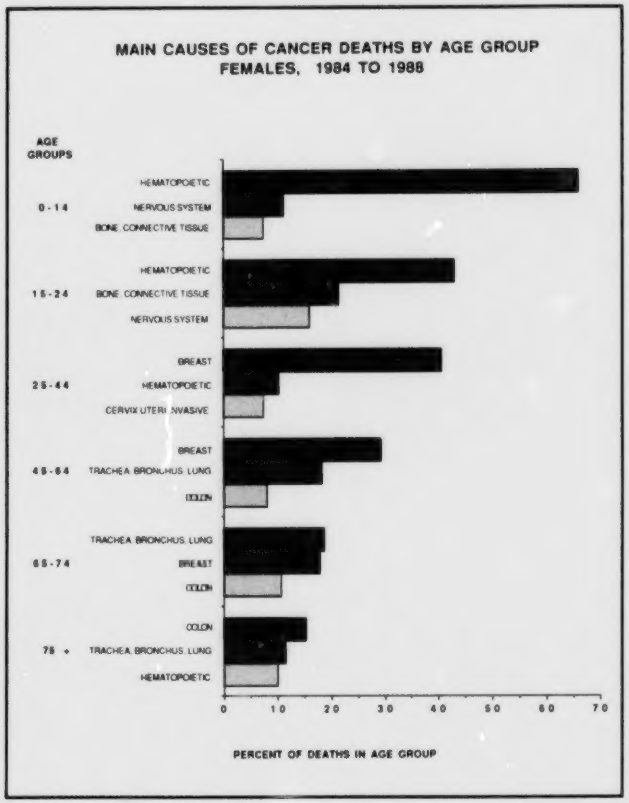
The three cancer site groups responsible for most cancer deaths for each age group are shown. Values express the proportion of all cancer deaths within the age group attributed to the site. The site groups responsible for most cancer deaths were the same for females and males in the two youngest age groups. Deaths amongst patients diagnosed with hematopoietic cancer were most dramatic for females aged 0 to 14 where 66% of all cancer deaths occurred in these patients. Hematopoietic cancer remained one of the three most important cancers for males of all ages while for females it did not rank in the top three for the 45 to 64 and 65 to 74 age groupings only.

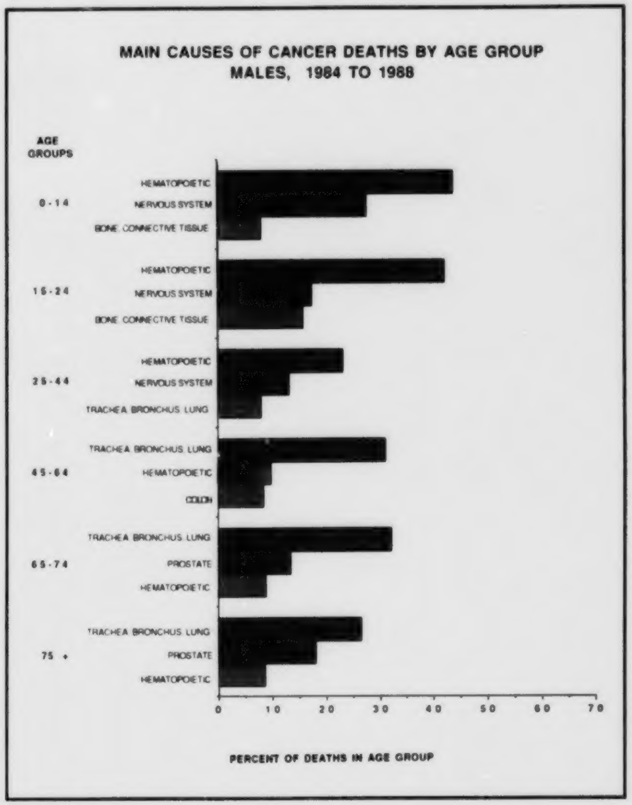
For females, breast cancer was associated with most deaths in the 25 to 44 age group and it remained amongst the three most important cancers for the next two age groups. Both site groups of colon and trachea, bronchus and lung were important for females over the age of 45 years.

Three site groups accounted for more than 80% of deaths to female cancer patients in the two youngest age groups. In 0 to 14 year olds, deaths occurred in patients of seven site groups but in females aged 45 years or older deaths occurred to patients of all cancer site groups except in situ carcinoma of the cervix. Amongst the oldest females, the three most important site groups account for only 38% of all cancer deaths.

Trachea, bronchus and lung appeared as one of the three most important cancers for males in the 25 to 44 year age group. For all older ages, this site group ranked highest. Prostate was the second most important cancer site group for males aged 65 years and older.

Three site groups accounted for 79% of all cancer deaths amongst 0 to 14 year old males and another five site groups accounted for the remaining deaths. For males older than 45 years, deaths occurred in every site group but the three most important sites accounted for approximately half of all deaths.


MAIN CAUSES OF CANCER DEATHS BY AGE GROUP
FEMALES, 1984 TO 1988


MAIN CAUSES OF CANCER DEATHS BY AGE GROUP
MALES, 1984 TO 1988

# SITE SPECIFIC INCIDENCE AND SURVIVAL

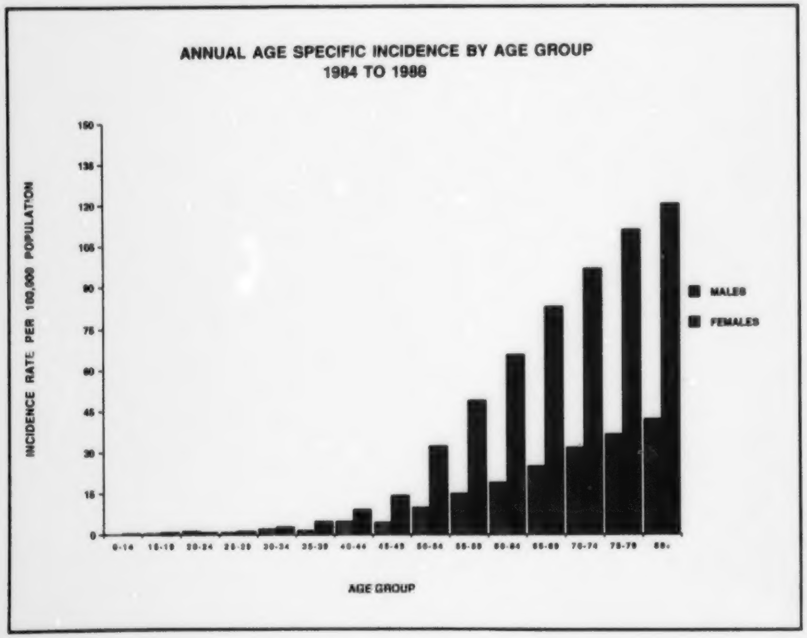
# LIP, ORAL CAVITY, PHARYNX, NASAL CAVITY

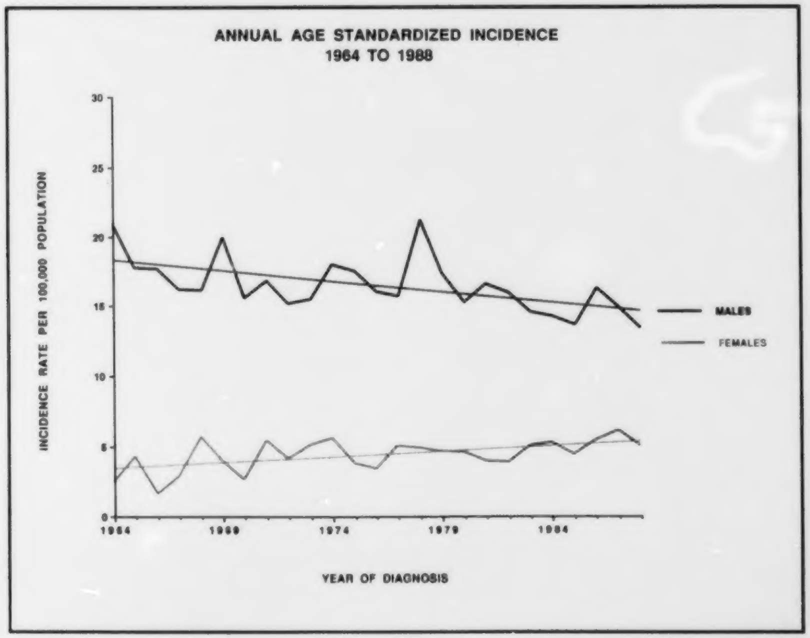
Head and neck cancer was less important for females when compared to other site groups, but for males the incidence rate ranked seventh highest. Age specific incidence rates (averaged over the 1984 to 1988 period) are shown. Incidence rates display marked increases for both females and males aged 40 and above. At all ages, male rates exceeded female rates and at ages older than 45 years, the male rate was at least three times that of females. The largest absolute difference in rates between females and males occurred in the oldest age category where male incidence totalled 120 per 100,000, and female incidence was 40.

Age standardized incidence rates for each year between 1964 and 1988 are shown. Throughout the period female rates increased while male rates declined. Female incidence was 2.5 in 1964 and by 1988 it had increased to 5.0. The slope of the trend line is 0.083 (↑) representing an increase of one case per 100,000 every 12 years. Rates determined from the line of best fit increased by 59% during the 25 year interval.

For males, incidence was 20.8 in 1964 and this decreased to 13.3 by the end of the interval. The slope of the line is -0.153 (↓) representing a decrease of one case per 100,000 every 6.5 years. Rates determined from the line of best fit decreased by 20% over the 25 year period.

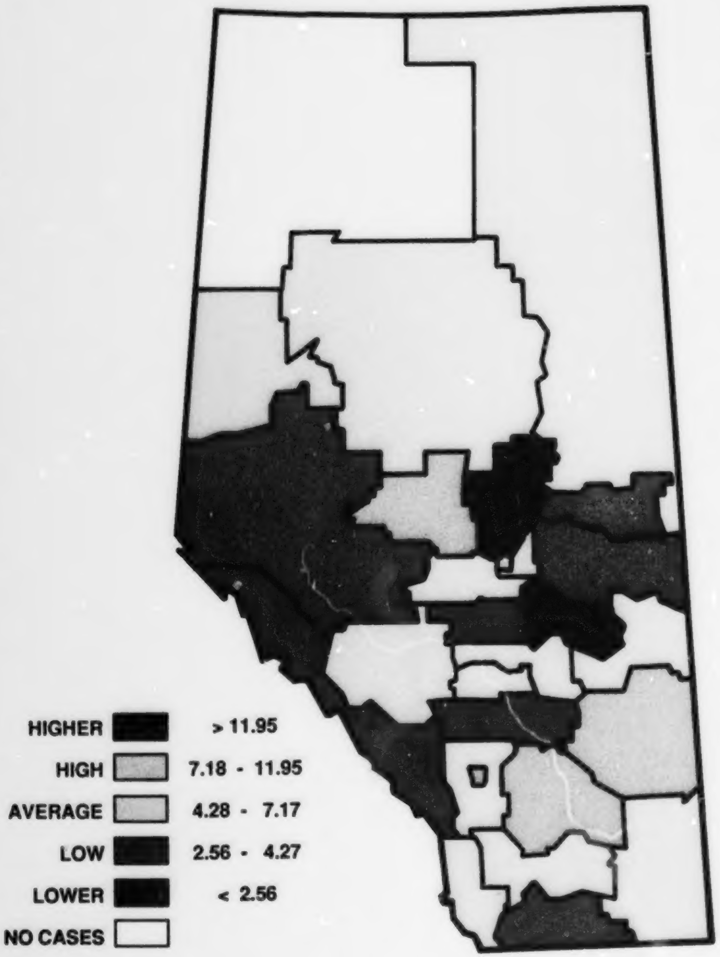
The provincial incidence rates for the mapped data were 5.6 per 100,000 for females and 14.1 for males. On the map of female rates, no areas had higher incidence and 4 areas were high. Lower incidence was observed in 3 areas and 7 areas were low. No cases were recorded in 1 area. The map of male rates shows 1 area with higher incidence and 5 classed as high. Lower incidence was observed in 1 area and 4 areas were low. Mapped areas 9 and 24 were above average on both maps while mapped areas 7 and 23 were below average for both females and males.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1984 TO 1988

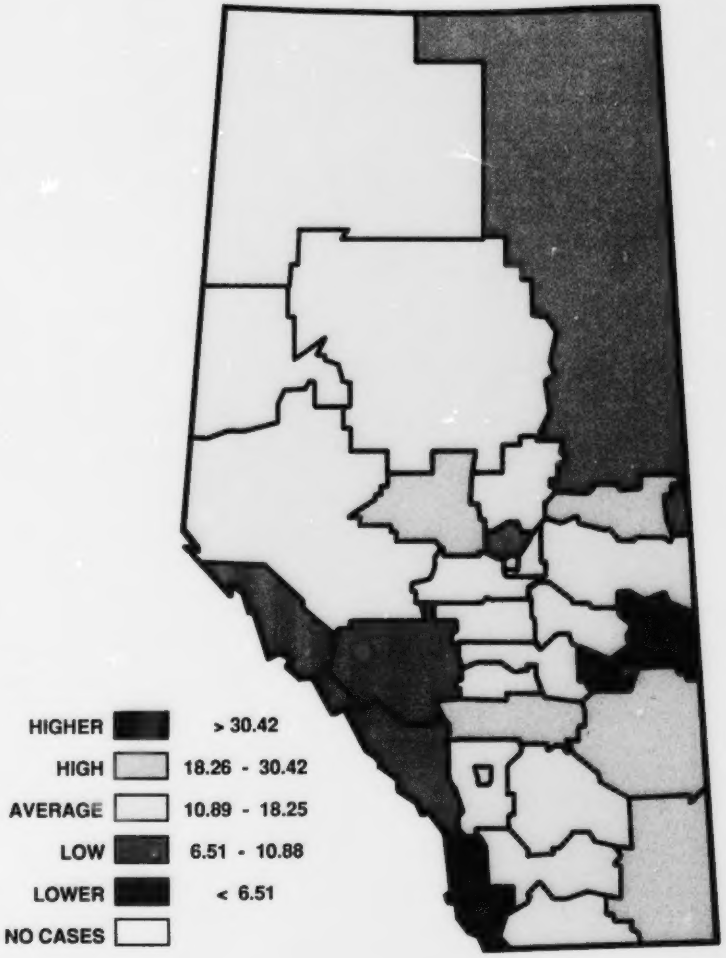

ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

# ICD-9 CODES 140 TO 149, 160

FEMALES


HIGHER > 11.95
HIGH 7.18 - 11.95
AVERAGE 4.28 - 7.17
LOW 2.56 - 4.27
LOWER < 2.56
NO CASES

MALES


HIGHER > 30.42
HIGH 18.26 - 30.42
AVERAGE 10.89 - 18.25
LOW 6.51 - 10.88
LOWER < 6.51
NO CASES

# LIP, ORAL CAVITY, PHARYNX, NASAL CAVITY

The survival experience of persons diagnosed with cancer of the lip, oral cavity, pharynx or nasal cavity is shown. For females, the maximum duration of follow-up was greater than 21 years and 71% of the youngest age group and 56% of females aged 35 to 44 survived this long, hence median survival periods for these two groups could not be determined. Median survival periods for other age groups are tabulated.

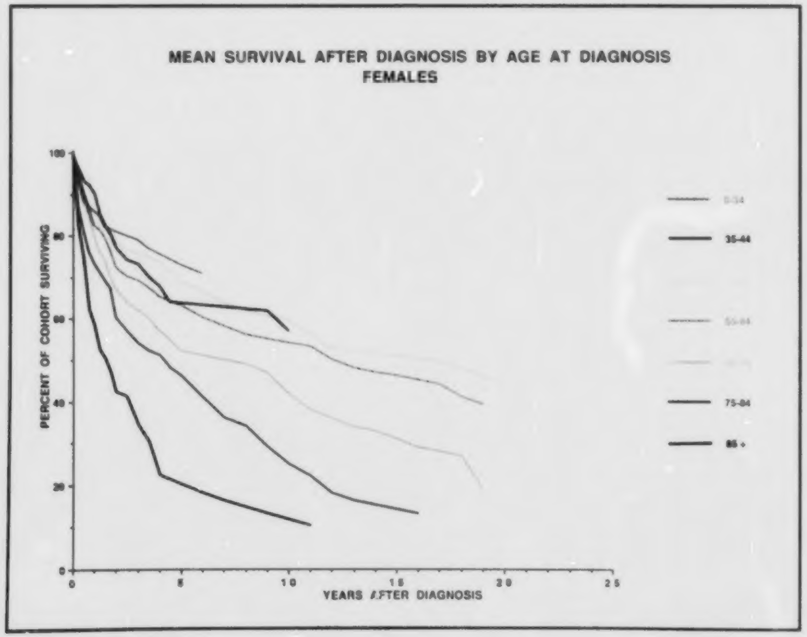
Expressed as a percentage of the anticipated life expectancy, females aged 45 to 54 lived 55% of their anticipated life expectancy after diagnosis and this proportion dropped to 31% in the oldest age group. The highest number of years of life lost by females diagnosed with this cancer was experienced by the 45 to 54 year age group.

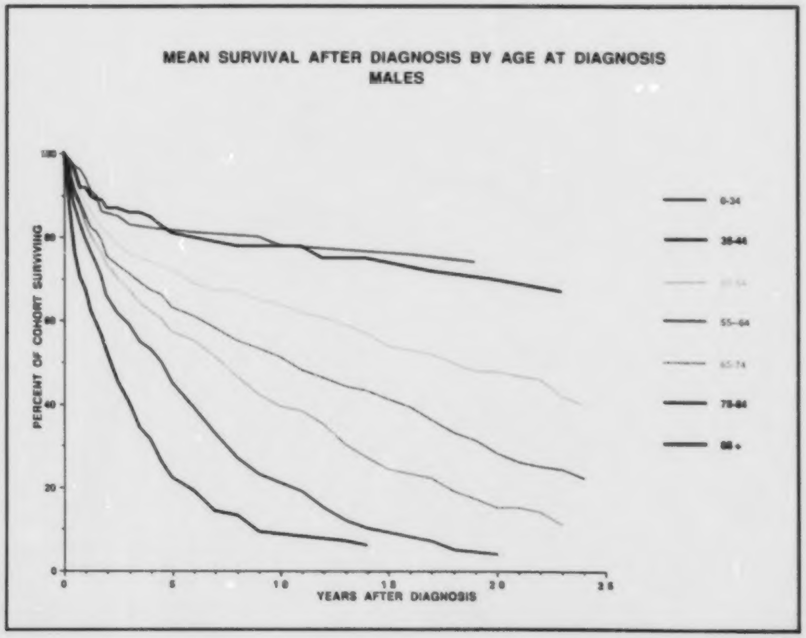
For males, 72% and 65% of the two youngest age groups survived the full follow-up period of 25 years. Median survival periods for other age groups are tabulated. Males in all age groups survived more than half their anticipated life expectancy and three of the five groups survived two-thirds of their anticipated life expectancy.

The survival experience of females was worse than that for males. At all ages, females lost more years of their expected life than did males.

LIFE EXPECTANCY AFTER DIAGNOSIS

|  | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES |  |  |  |  |  |
| 0-34 | 85 | -- | 63.9 | -- | -- |
| 35-44 | 83 | -- | 41.7 | -- | -- |
| 45-54 | 138 | 17.8 | 32.4 | 14.6 | 55% |
| 55-64 | 263 | 12.8 | 23.7 | 10.9 | 54% |
| 65-74 | 248 | 7.3 | 15.8 | 8.5 | 46% |
| 75-84 | 173 | 4.4 | 9.1 | 4.7 | 49% |
| 85+ | 72 | 1.8 | 6.0 | 4.2 | 31% |
| MALES |  |  |  |  |  |
| 0-34 | 142 | -- | 57.7 | -- | -- |
| 35-44 | 252 | -- | 36.6 | -- | -- |
| 45-54 | 692 | 18.2 | 27.3 | 9.1 | 67% |
| 55-64 | 1050 | 11.3 | 19.2 | 7.9 | 59% |
| 65-74 | 1009 | 8.1 | 12.3 | 4.2 | 66% |
| 75-84 | 623 | 4.8 | 7.2 | 2.4 | 66% |
| 85+ | 183 | 2.6 | 5.0 | 2.4 | 52% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES

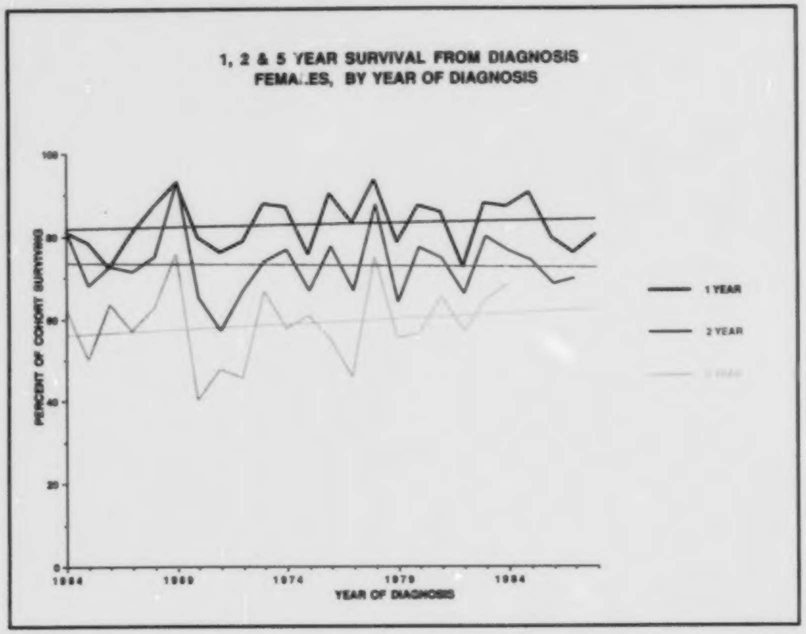

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

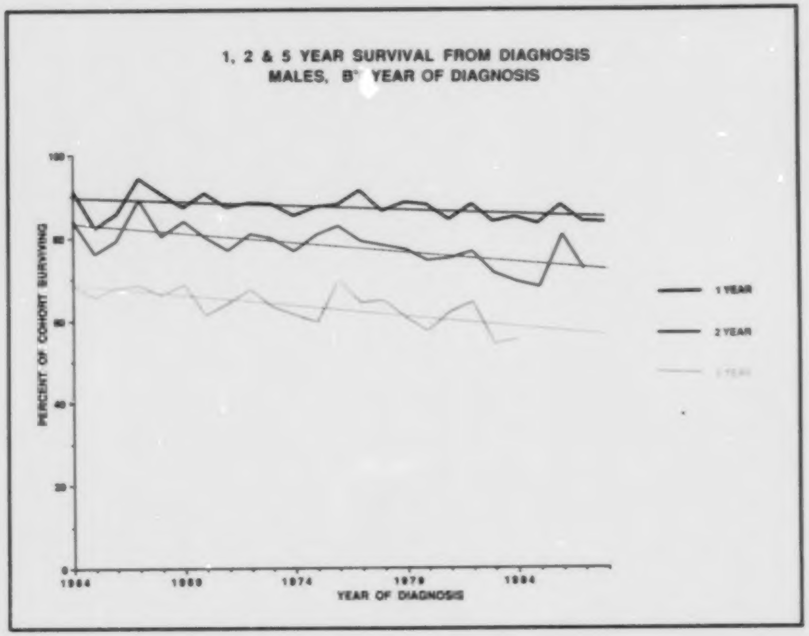
Compared to all other site groups, female one, two and five year survival rates ranked in the middle of the range. Annual variation in the rates was relatively large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with head and neck cancer was 42 per year. The lowest number of cases in any year was 11.

The slopes of the female trend lines are: one year = 0.091 (↔), two year = -0.055 (↔) and five year = 0.254 (↔). According to the trend lines, one year survival rates began the interval at 81.9% and increased slightly to 84.1% in 1988. Two year survival rates (trend line) decreased slightly from 73.5% in 1964 to 72.1% in 1988. On average, two year rates were 87% of one year rates. Five year survival rates (trend line) began the interval at 56.1% and increased to 62.2% in 1988. They averaged 70% of one year survival rates.

For males, the one, two and five year survival rates ranked sixth highest. Annual variation in the rates was very small and a large number of cases each year contributed to this. The average number of males diagnosed with this cancer was 157 per year and the annual number of cases was never lower than 126.

The slopes of the male trend lines are: one year = -0.205 (↓), two year = -0.476 (↓) and five year = -0.522 (↓). According to the trend lines, one year survival rates began the interval at 89.8% and decreased to 84.9% in 1988. Two year survival rates (trend line) decreased from 83.3% in 1964 to 71.9% in 1988. On average, two year rates were 89% of one year rates. Five year survival rates (trend line) began the interval at 68.9% and decreased to 56.4% in 1988. They averaged 71% of one year survival rates.





# ESOPHAGUS

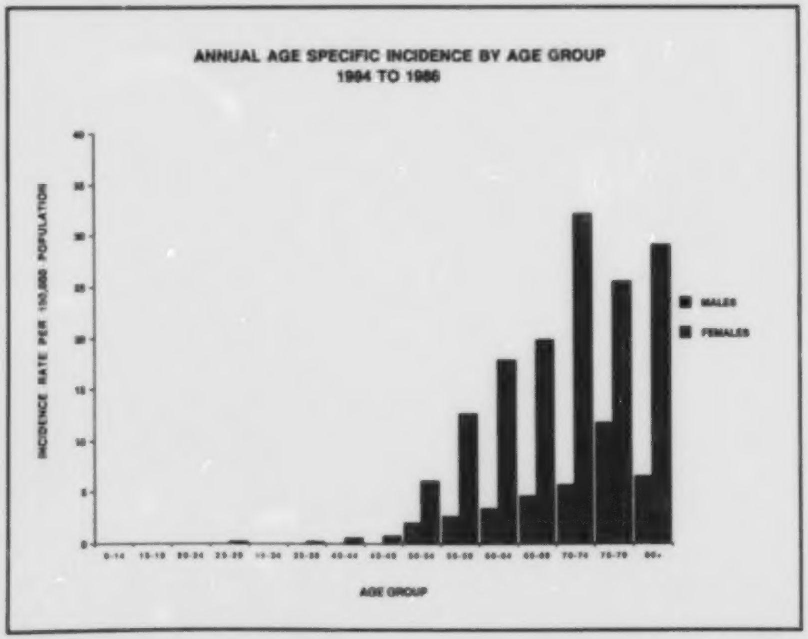
Cancer of the esophagus affected older people and was very rare amongst persons under the age of 50. Male incidence rates tended to be four or five times that of females. For both females and males, the oldest age groups did not experience the highest incidence rates. Female incidence reached a peak of 12.0 per 100,000 in the 75 to 79 year age group while male incidence was higher amongst 70 to 74 year olds at 31.9 per 100,000.

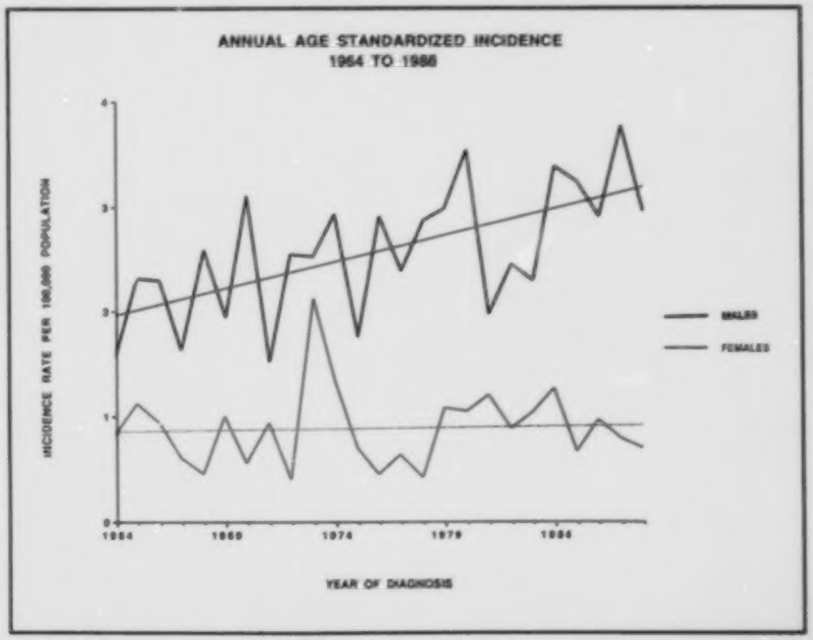
Annual variation in rates was wide and this is due in part to small numbers of cases. The number of new female cases never exceeded 17 per year and male cases usually numbered 30 or less. At the start of the interval, the female incidence rate was 0.8 cases per 100,000 and in 1988 it was 0.7. The slope of the trend line is 0.004 (↔).

The male rate began at 1.6 per 100,000 and climbed to 3.0 in 1988. The slope of the trend line is 0.052 (↑) representing an increase of one case per 100,000 every 19 years. Over the 25 years male incidence rates (taken from the trend line) increased by 64%.

In 1964, male incidence was twice the female rate. By the end of the interval, male incidence (as taken from the trend line) was approximately 3.5 times the female rate.

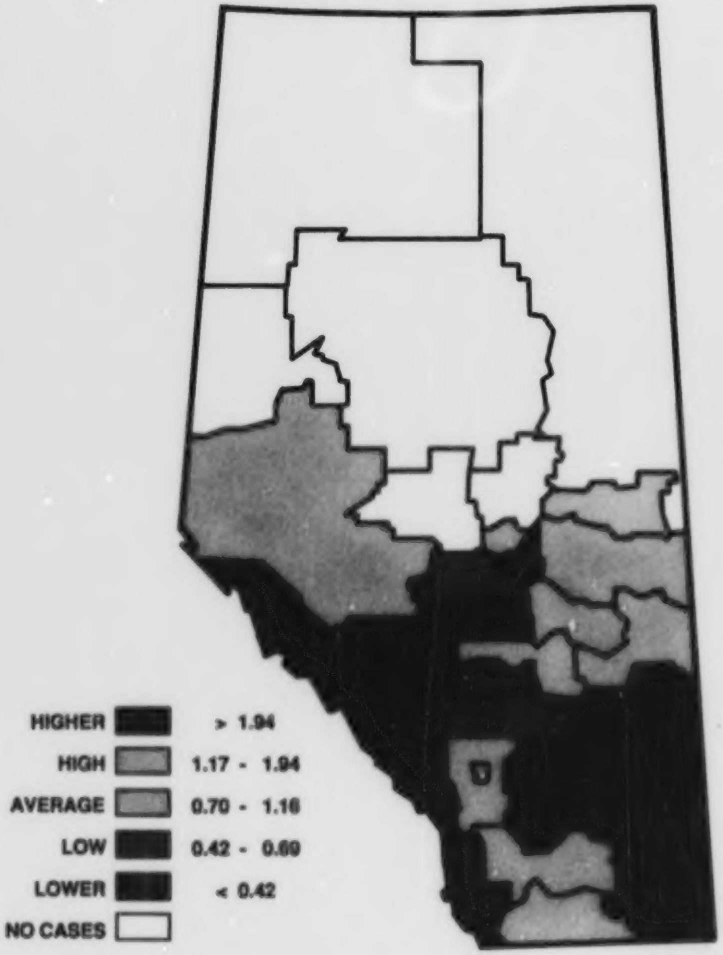
The provincial incidence rates for the mapped data were 0.9 per 100,000 for females and 3.3 for males. On the map of female rates, 8 areas had higher incidence and 7 areas were high. Lower incidence was observed in 1 area and 3 areas were low. No cases were recorded in 6 areas. The map of male rates shows 1 area with higher incidence and 5 classed as high. Lower incidence was observed in 5 areas and 9 areas were low. No cases were recorded in 1 area. Mapped areas 3, 7, 14 and 15 were above average on both maps while mapped areas 20, 24 and 26 to 29 were below average for both females and males.



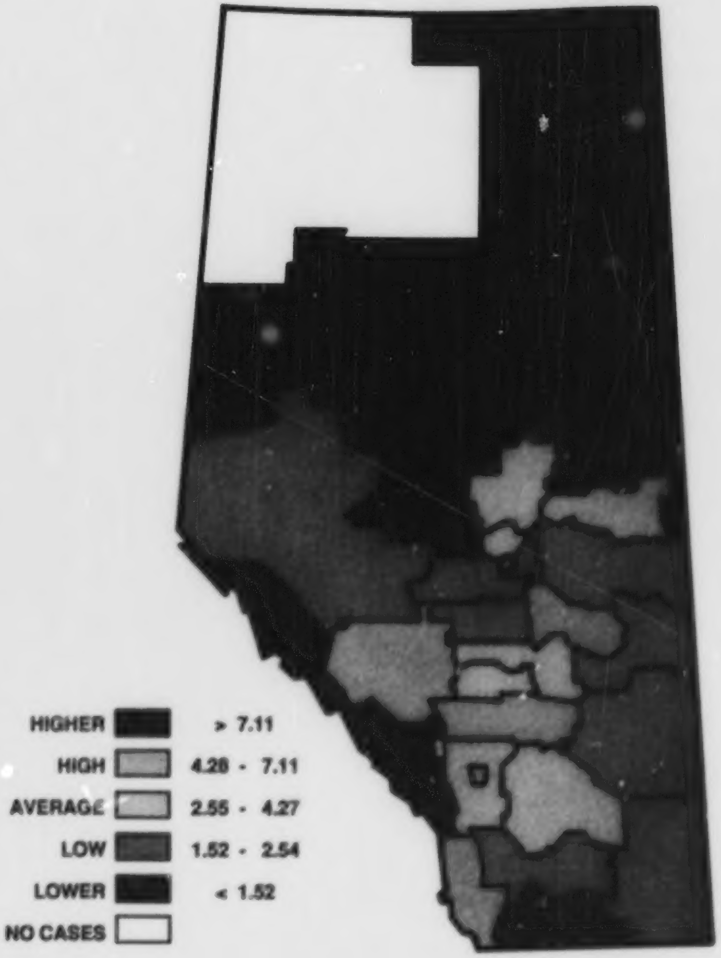


## ICD-9 CODES 150

FEMALES


HIGHER > 1.94
HIGH 1.17 - 1.94
AVERAGE 0.70 - 1.16
LOW 0.42 - 0.69
LOWER < 0.42
NO CASES
D

MALES


HIGHER > 7.11
HIGH 4.28 - 7.11
AVERAGE 2.55 - 4.27
LOW 1.52 - 2.54
LOWER < 1.52
NO CASES
D

# ESOPHAGUS

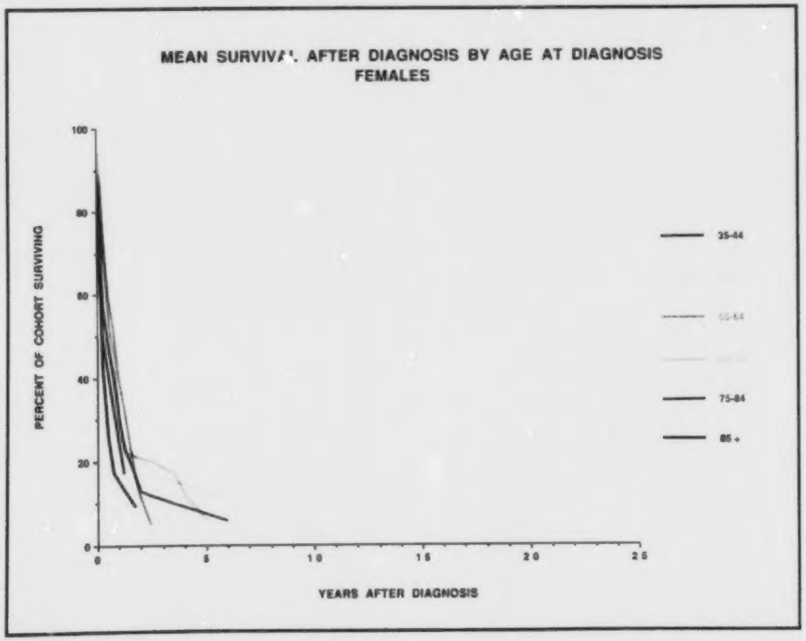
Survival times for persons diagnosed with cancer of the esophagus are shown. Median survival times were very short, the longest being 18 months for males in the youngest age group. There were no females in the youngest age group diagnosed with this disease and females aged 55 to 64 experienced the longest median survival of 12 months. Median survival of 35 to 44 year olds was only 2% of their anticipated life expectancy and 40.9 years of life were lost.

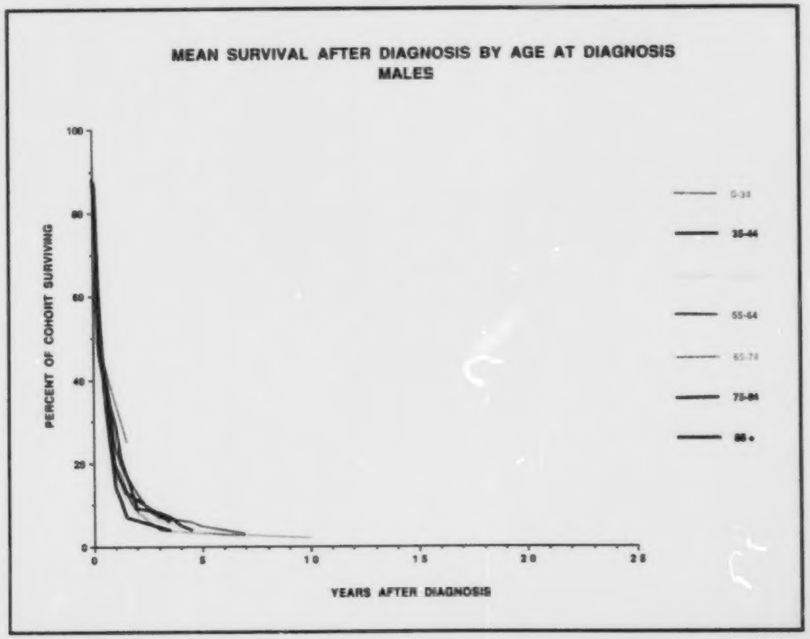
Males in the youngest age group lost the most life to cancer of the esophagus (56.2 years) and survived only 3% of their anticipated life expectancy. Males in the oldest age category had a median survival of just 4 months which was 7% of their anticipated life expectancy.

Females and males both suffered great losses in life due to cancer of the esophagus. In absolute terms, females lost more years of expected life than did males, but in proportional terms, both genders lived tiny portions of their expected life after diagnosis.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 0 | -- | 63.9 | -- | -- |
| 35-44 | 6 | 0.8 | 41.7 | 40.9 | 2% |
| 45-54 | 19 | 0.8 | 32.4 | 31.6 | 2% |
| 55-64 | 48 | 1.0 | 23.7 | 22.7 | 4% |
| 65-74 | 50 | 0.9 | 15.8 | 14.9 | 6% |
| 75-84 | 61 | 0.6 | 9.1 | 8.5 | 6% |
| 85+ | 23 | 0.4 | 6.0 | 5.6 | 7% |
| MALES | | | | | |
| 0-34 | 4 | 1.5 | 57.7 | 56.2 | 3% |
| 35-44 | 16 | 0.7 | 36.6 | 35.9 | 2% |
| 45-54 | 73 | 0.5 | 27.3 | 26.8 | 2% |
| 55-64 | 200 | 0.6 | 19.2 | 18.6 | 3% |
| 65-74 | 191 | 0.5 | 12.3 | 11.8 | 4% |
| 75-84 | 126 | 0.5 | 7.2 | 6.7 | 7% |
| 85+ | 28 | 0.3 | 5.0 | 4.7 | 7% |



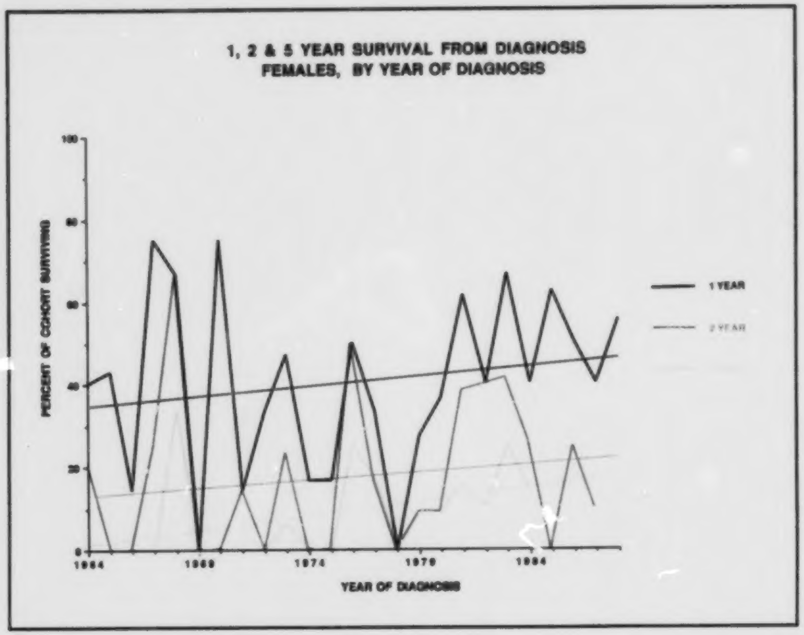


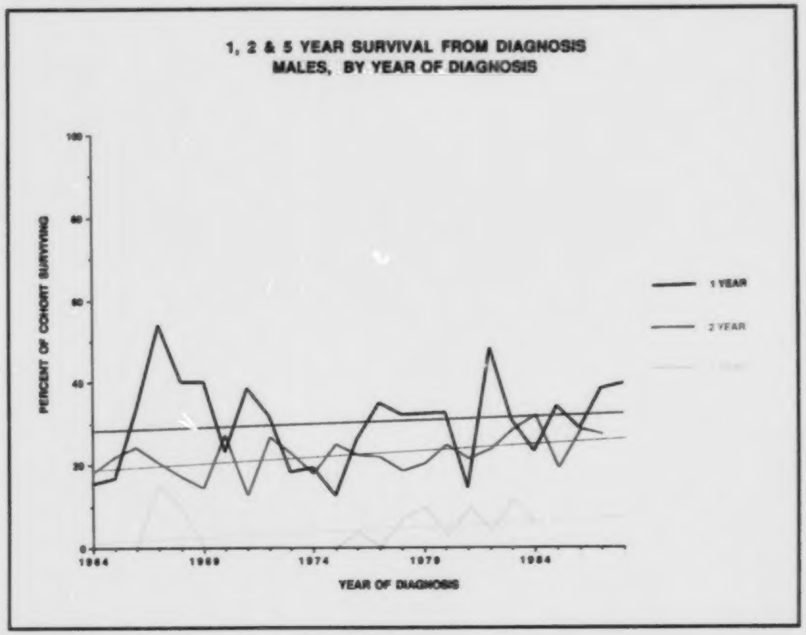
Compared to all other site groups, female survival rates ranked ninth lowest for one year survival, fifth lowest for two year and fifth lowest for five year. Annual variation in the rates was very large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 8 per year. The lowest number of cases in any year was 3.

The slopes of the female trend lines are: one year = 0.474 (↔), two year = 0.387 (↔) and five year = 0.701 (↑). According to the trend lines, one year survival rates began the interval at 34.5% and increased to 45.9% in 1988. Two year survival rates (trend line) increased from 12.9% in 1964 to 22.2% in 1988. On average, two year rates were 41% of one year rates. Five year survival rates (trend line) began the interval at almost nil and increased to 17.6% in 1988. They averaged 18% of one year survival rates.

For males, the one, two and five year survival rates ranked fourth lowest. Annual variation in the rates was relatively large and part of this variation can be explained as a small numbers problem. The average number of males diagnosed with this cancer was 26 per year. The lowest number of cases in any year was 12.

The slopes of the male trend lines are: one year = 0.173 (↔), two year = 0.269 (↔) and five year = 0.239 (↔). According to the trend lines, one year survival rates began the interval at 28.2% and increased to 32.4% in 1988. Two year survival rates (trend line) increased from 8.2% in 1964 to 14.6% in 1988. On average, two year rates were 38% of one year rates. Five year survival rates (trend line) began the interval at 1.3% and increased to 7.1% in 1988. They averaged 11% of one year survival rates.


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

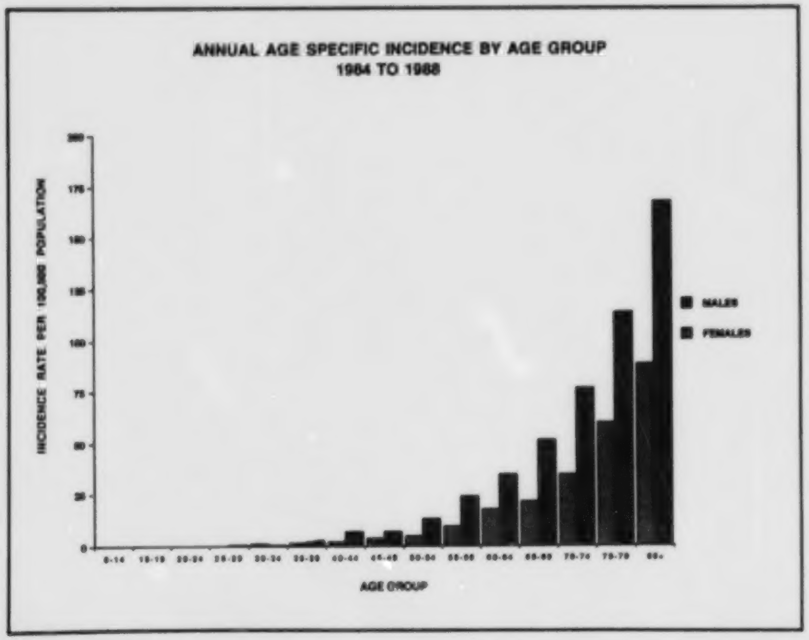
# STOMACH

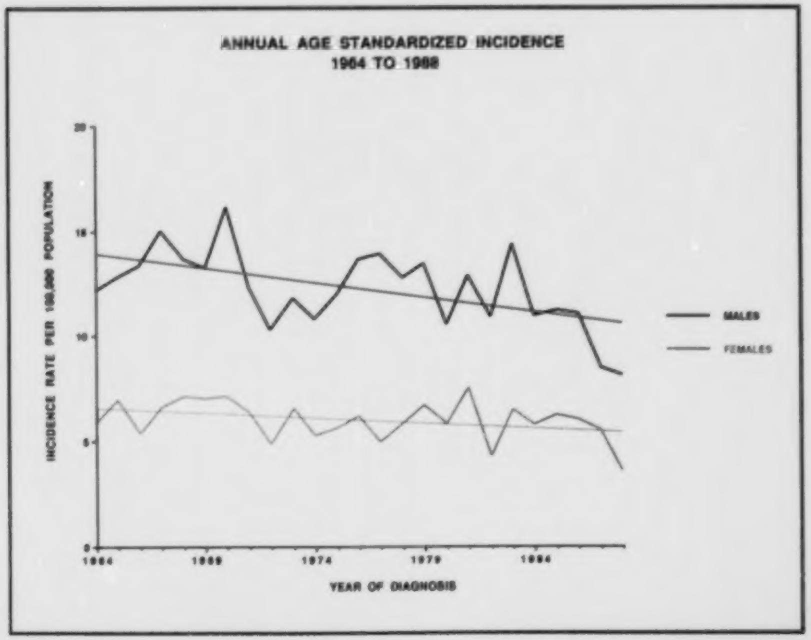
Stomach cancer showed an increasingly higher rate in older age groups. Male incidence exceeded female incidence in all ages and generally was two to three times the female rate in any age category. Female incidence rates peaked at 88.6 per 100,000 in the oldest age category. The maximum incidence rate in males was 170.6.

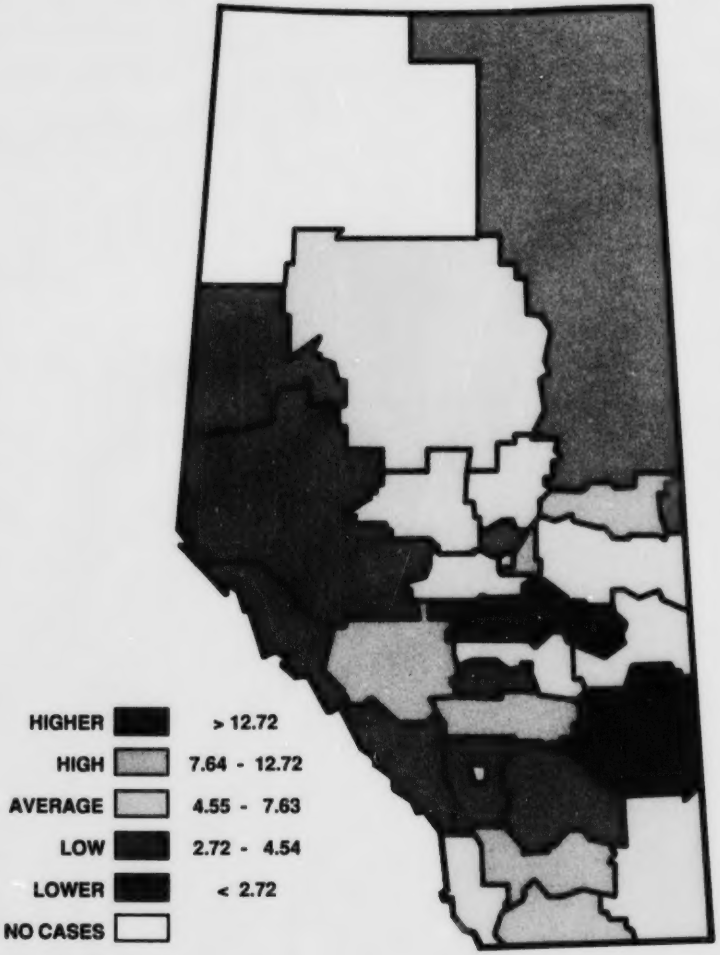
Incidence rates have decreased for both genders between 1964 and 1988 which is consistent with reports from other countries. Female incidence was 5.9 in 1964 and by 1988 it had declined to 3.6. The slope of the trend line for females is -0.047 (↔). The trend line demonstrates a decrease of 17% between 1964 and 1988.

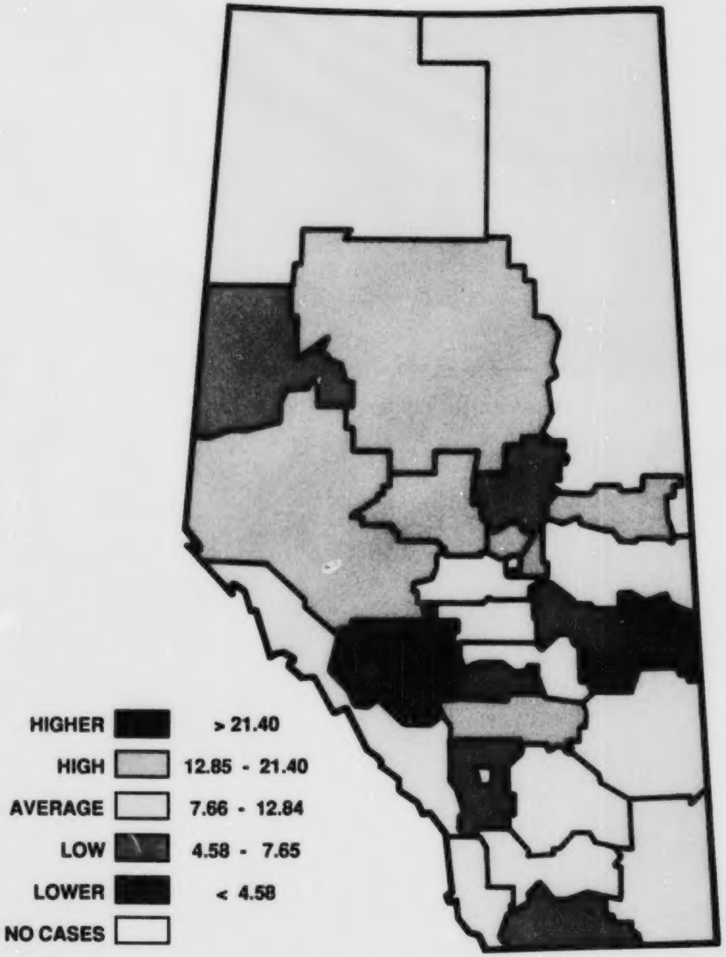
For males, incidence was 12.1 in 1964 and just 8.1 in 1988. The slope of the trend line for males is -0.140 (↓). The trend line demonstrates a 24% decrease over the interval and 7.2 years were required to have the incidence rate decline by one case per 100,000. The ratio of male incidence to female incidence was approximately 2.1 throughout the period.

The provincial incidence rates for the mapped data were 5.9 per 100,000 for females and 10.0 for males. On the map of female rates, no areas had higher incidence and 6 areas were high. Lower incidence was observed in 3 areas and 8 areas were low. No cases were recorded in 1 area. The map of male rates shows no areas with higher incidence and 7 classed as high. Lower incidence was observed in 2 areas and 6 areas were low. Mapped areas 10, 18 and 22 were above average on both maps while mapped areas 8, 13, 15 and 28 were below average for both females and males.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1964 TO 1988


ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988


HIGHER ■ > 12.72
HIGH ▨ 7.64 - 12.72
AVERAGE ▨ 4.55 - 7.63
LOW ■ 2.72 - 4.54
LOWER ■ < 2.72
NO CASES ☐


HIGHER ■ > 21.40
HIGH ▨ 12.85 - 21.40
AVERAGE ☐ 7.66 - 12.84
LOW ■ 4.58 - 7.65
LOWER ■ < 4.58
NO CASES ☐

## STOMACH

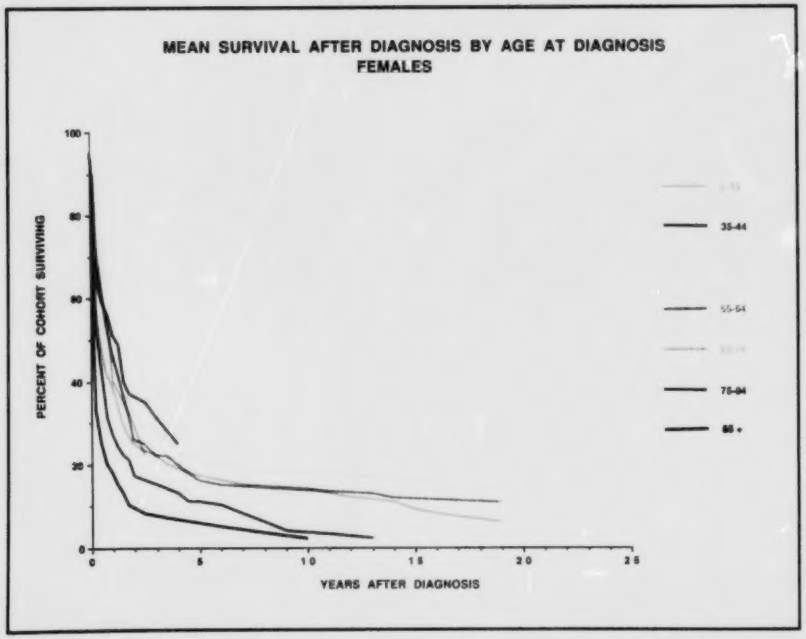
Cancer of the stomach is associated with relatively short survival durations. Median survival was longest in the youngest age category of males (2.0 years). In females, the four younger age groups had median survival periods of either 13 or 14 months. In the oldest females, median survival was just 3 months. No group of females had a median survival time that was greater than 5% of their anticipated life expectancy. Potential years of life lost was greatest in the youngest females who lost an average 62.8 years of life.

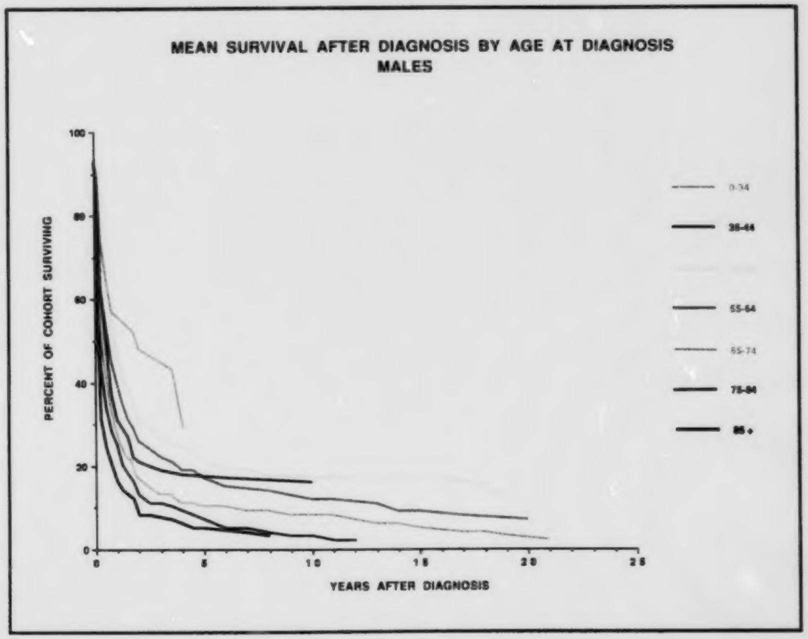
Median survival times were equally poor for males. Males aged 75 to 84 had a median survival of 5 months which represented 6% of their anticipated life expectancy. Other age groups of males lived lesser proportions of their expected years of life and the youngest males lost the most years (55.7).

Females lost more years of life to cancer of the stomach than did males, but this was in part a reflection of longer life expectancy for females. Both genders had short median survival times and lived small proportions of their anticipated life expectancy.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 20 | 1.1 | 63.9 | 62.8 | 2% |
| 35-44 | 60 | 1.2 | 41.7 | 40.5 | 3% |
| 45-54 | 130 | 1.2 | 32.4 | 31.2 | 4% |
| 55-64 | 267 | 1.1 | 23.7 | 22.6 | 5% |
| 65-74 | 350 | 0.7 | 15.8 | 15.1 | 4% |
| 75-84 | 398 | 0.5 | 9.1 | 8.6 | 5% |
| 85+ | 170 | 0.3 | 6.0 | 5.7 | 4% |
| MALES | | | | | |
| 0-34 | 23 | 2.0 | 57.7 | 55.7 | 3% |
| 35-44 | 122 | 0.7 | 36.6 | 35.9 | 2% |
| 45-54 | 307 | 1.2 | 27.3 | 26.1 | 4% |
| 55-64 | 648 | 0.8 | 19.2 | 18.4 | 4% |
| 65-74 | 904 | 0.6 | 12.3 | 11.7 | 5% |
| 75-84 | 727 | 0.4 | 7.2 | 6.8 | 6% |
| 85+ | 214 | 0.2 | 5.0 | 4.8 | 3% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES

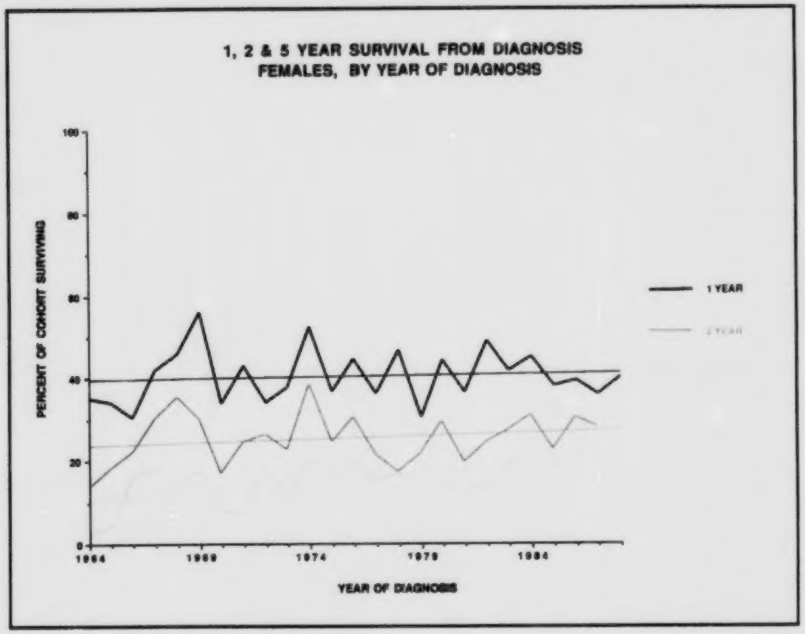

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

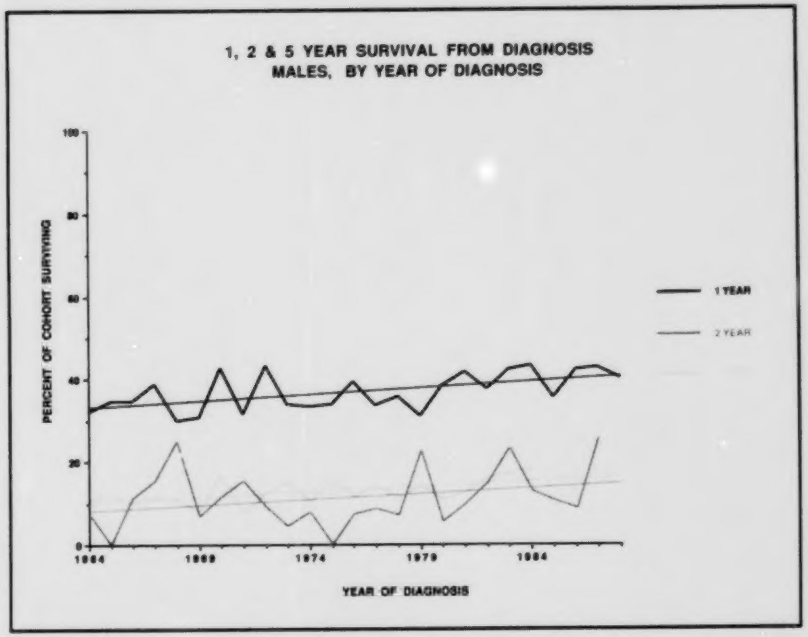
Compared to all other site groups, female one, two, and five year survival rates were similar to those of females diagnosed with cancer of the gallbladder and were ranked seventh lowest. Annual variation in the rates was relatively large despite a reasonable number of cases each year. The average number of females diagnosed with this cancer was 56 per year and the annual number of cases was never lower than 35.

The slopes of the female trend lines are: one year = 0.069 (↔), two year = 0.168 (↔) and five year = 0.435 (↑). According to the trend lines, one year survival rates began the interval at 39.5% and increased slightly to 41.2% in 1988. Two year survival rates (trend line) increased from 23.3% in 1964 to 27.4% in 1988. On average, two year rates were 60% of one year rates. Five year survival rates (trend line) began the interval at 10.3% and increased to 20.8% in 1988. They averaged 35% of one year survival rates.

For males, the one, two and five year survival rates ranked seventh lowest. Annual variation in the rates was relatively small and a large number of cases each year contributed to this. The average number of males diagnosed with this cancer was 117 per year and the annual number of cases was never lower than 89.

The slopes of the male trend lines are: one year = 0.316 (↑), two year = 0.294 (↑) and five year = 0.257 (↑). According to the trend lines, one year survival rates began the interval at 33.1% and increased to 40.7% in 1988. Two year survival rates (trend line) increased from 18.8% in 1964 to 25.9% in 1988. On average, two year rates were 61% of one year rates. Five year survival rates (trend line) began the interval at 10.1% and increased to 16.3% in 1988. They averaged 37% of one year survival rates.





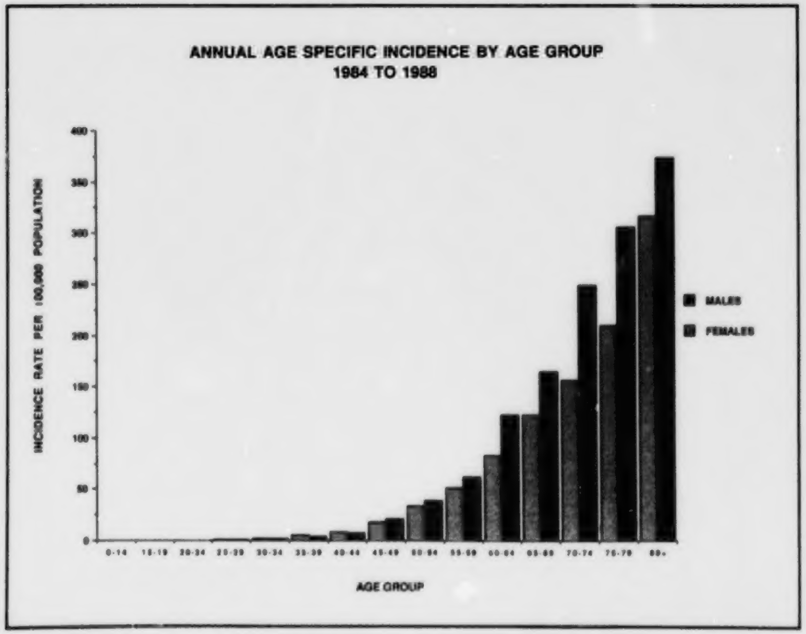
# COLON

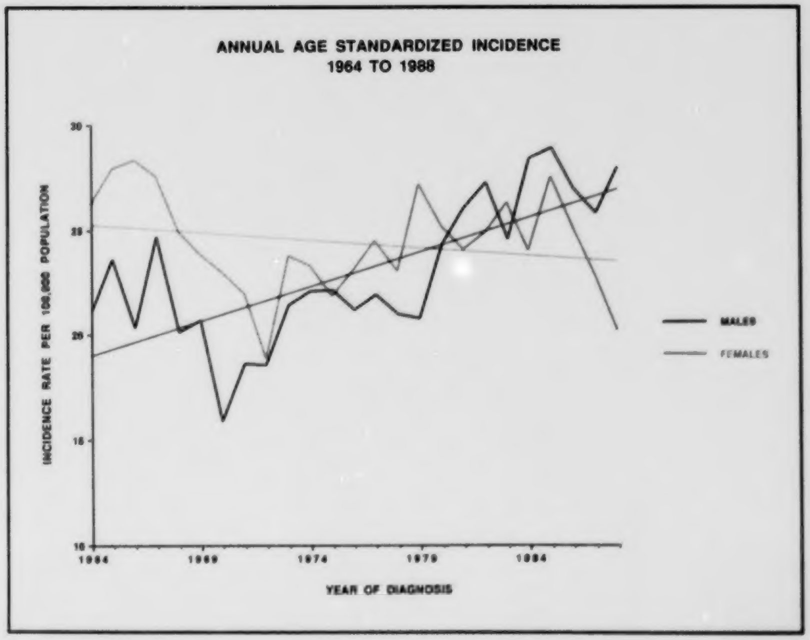
Colon cancer was very rare in persons younger than 24 years but in the older age groups it was one of the most frequently occurring cancers. In females the incidence of colon cancer was 1.0 per 100,000 in the 25 to 29 year age group and it climbed through all ages to reach a maximum incidence of 317.9 for females aged 80 years or older. Corresponding rates for males were 1.2 per 100,000 in 25 to 29 year olds and 374.9 in the oldest age category. Male incidence was higher in almost all age categories, but never did the male rate double the female rate.

Colon cancer incidence rates demonstrated dramatic variation through the 1964 to 1988 period. Female rates began the interval at 26.2 and were down to 20.2 by 1988. The slope of the trend line for females is -0.070 (↔) demonstrating a decrease in incidence of 7% between 1964 and 1988.

Male rates began the interval at 21.0 per 100,000 and remained lower than female rates in all years but one until 1981. Male incidence peaked at 28.9 in 1985. The trend line for male incidence has a slope of 0.331 (↑) and suggests that incidence increased by 42% during the 25 years and only 3 years were required for the incidence rate to increase by one case per 100,000.

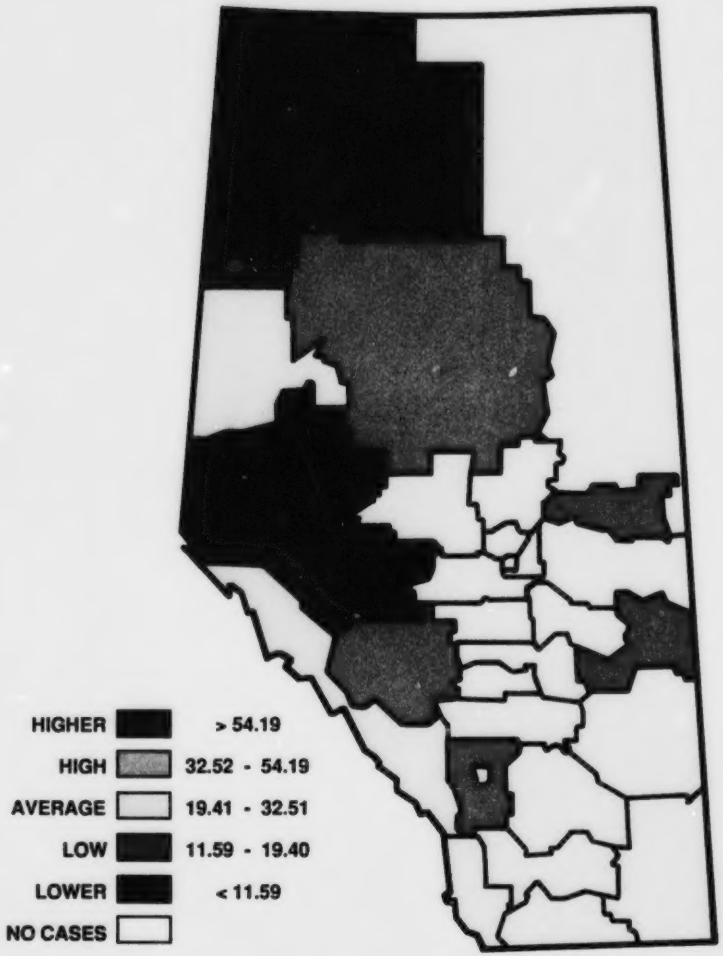
The provincial incidence rates for the mapped data were 25.2 per 100,000 for females and 27.1 for males. On the map of female rates, no areas had higher or high incidence. Lower incidence was observed in 2 areas and 5 areas were low. The map of male rates shows no areas with higher incidence and 1 area classed as high. Lower incidence was observed in 1 area and 7 areas were low. Mapped areas 8, 22, 27 and 29 were below average on both maps.



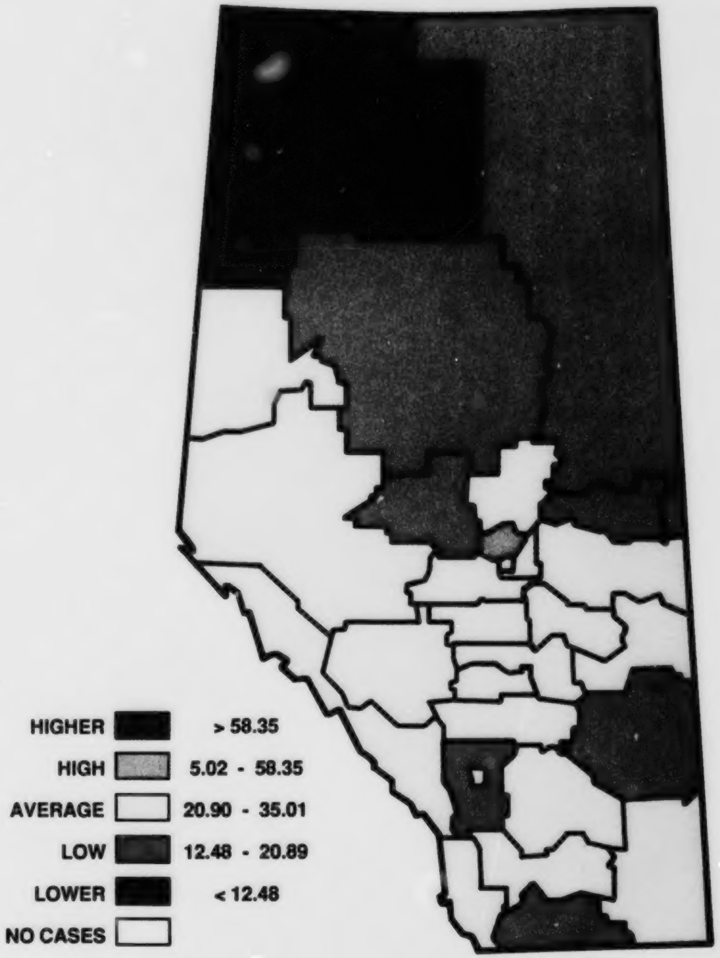


# ICD-9 CODES 153, 154.0

FEMALES


HIGHER > 54.19
HIGH 32.52 - 54.19
AVERAGE 19.41 - 32.51
LOW 11.59 - 19.40
LOWER < 11.59
NO CASES

MALES


HIGHER > 58.35
HIGH 5.02 - 58.35
AVERAGE 20.90 - 35.01
LOW 12.48 - 20.89
LOWER < 12.48
NO CASES

# COLON

The survival experience of persons diagnosed with colon cancer is shown. Median survival times are tabulated for all age groups except the youngest group of females who experienced a median survival period greater than 25 years. For all other age groups, median survival periods were much shorter than the anticipated life expectancy.

Median survival periods for females aged 35 years and older ranged from 6.3 years to less than 1 year. Females aged 75 to 84 years had a median survival that was 27% of the expected survival period. Members of the oldest age group survived 14% of their anticipated life expectancy.

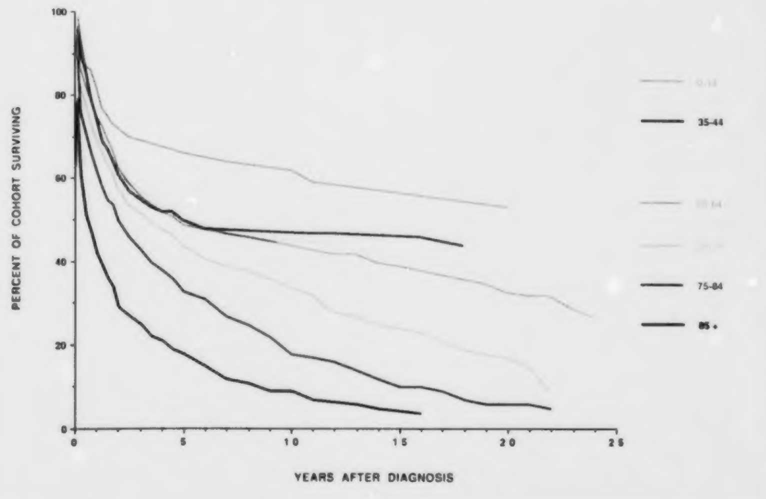
The longest median survival amongst males was 9.2 years experienced by those aged 35 to 44 years. This was 25% of the expected survival period. Males aged 75 to 84 lived the longest compared to their anticipated life expectancy (30%) while the youngest males lived only 8% of their expected years of survival.

Differences between females and males were minimal. Females lost more years of life than did males, but this was in part due to their longer life expectancy. The greatest difference occurred in the 35 to 44 age group where females experienced a median survival of just 5.9 years compared to 9.2 years for males.

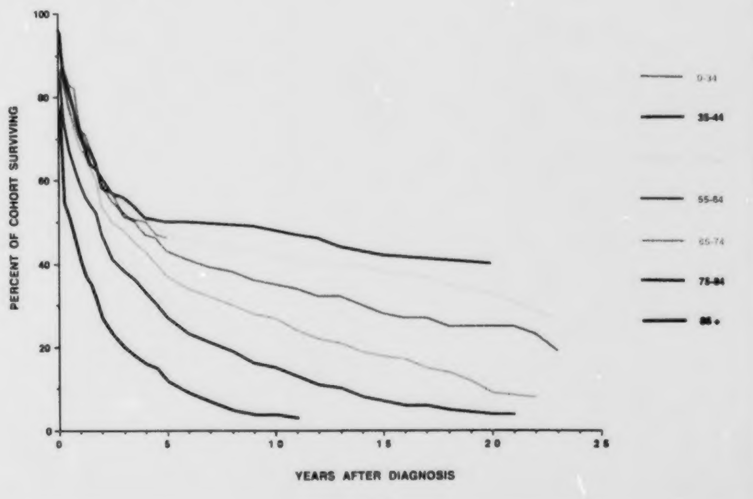
LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 70 | -- | 63.9 | -- | -- |
| 35-44 | 230 | 5.9 | 41.7 | 35.8 | 14% |
| 45-54 | 621 | 6.3 | 32.4 | 26.1 | 19% |
| 55-64 | 1136 | 6.1 | 23.7 | 17.6 | 26% |
| 65-74 | 1592 | 4.1 | 15.8 | 11.7 | 26% |
| 75-84 | 1406 | 2.5 | 9.1 | 6.6 | 27% |
| 85+ | 548 | 0.8 | 6.0 | 5.2 | 14% |
| MALES | | | | | |
| 0-34 | 78 | 4.8 | 57.7 | 52.9 | 8% |
| 35-44 | 206 | 9.2 | 36.6 | 27.4 | 25% |
| 45-54 | 567 | 5.1 | 27.3 | 22.2 | 19% |
| 55-64 | 1168 | 3.9 | 19.2 | 15.3 | 20% |
| 65-74 | 1726 | 3.1 | 12.3 | 9.2 | 25% |
| 75-84 | 1367 | 2.2 | 7.2 | 5.0 | 30% |
| 85+ | 421 | 0.8 | 5.0 | 4.2 | 15% |

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES



MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

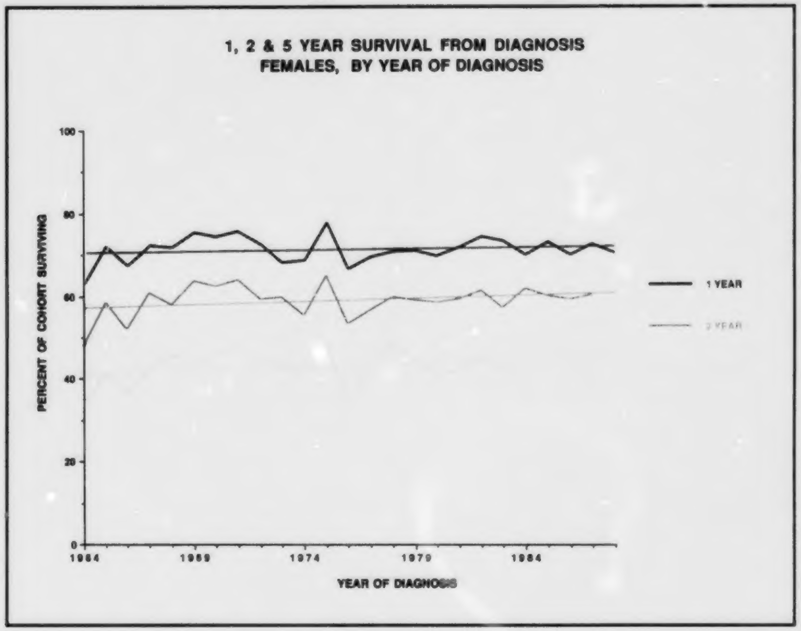


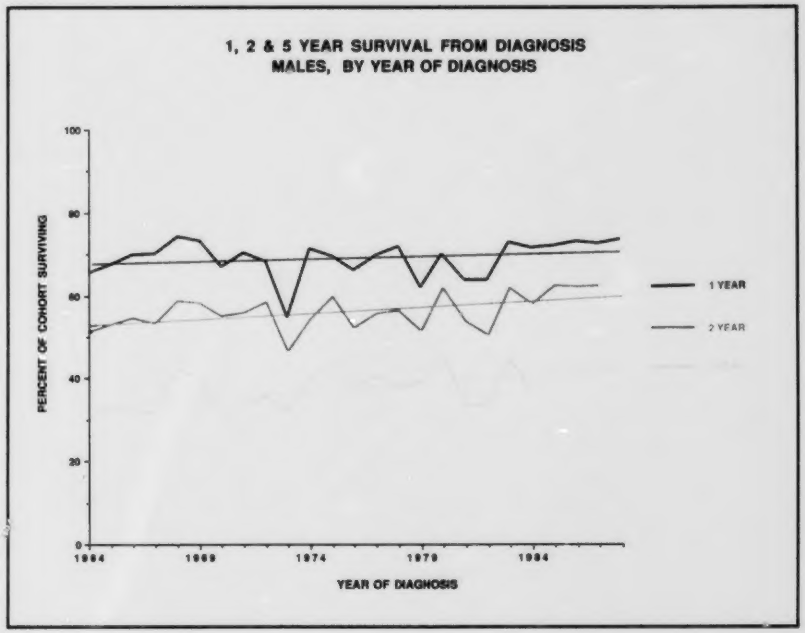
Compared to all other site groups, female one, two, and five year survival rates ranked in the middle of the range. Annual variation in the rates was relatively small and a large number of cases each year contributed to this. The average number of females diagnosed with this cancer was 227 per year and the annual number of cases was never lower than 148.

The slopes of the female trend lines are: one year = 0.059 (↔), two year = 0.144 (↔) and five year = 0.174 (↔). According to the trend lines, one year survival rates began the interval at 70.4% and increased slightly to 71.8% in 1988. Two year survival rates (trend line) increased slightly from 57.1% in 1964 to 60.5% in 1988. On average, two year rates were 82% of one year rates. Five year survival rates (trend line) began the interval at 41.0% and increased to 45.2% in 1988. They averaged 61% of one year survival rates.

For males, the one, two, and five year survival rates ranked in the middle of the range. Annual variation in the rates was relatively small and a large number of cases each year contributed to this. The average number of males diagnosed with this cancer was 226 per year and the annual number of cases was never lower than 132.

The slopes of the male trend lines are: one year = 0.128 (↔), two year = 0.285 (↑) and five year = 0.362 (↑). According to the trend lines, one year survival rates began the interval at 67.5% and increased slightly to 70.5% in 1988. Two year survival rates (trend line) increased from 52.7% in 1964 to 59.6% in 1988. On average, two year rates were 82% of one year rates. Five year survival rates (trend line) began the interval at 32.9% and increased to 41.6% in 1988. They averaged 55% of one year survival rates.





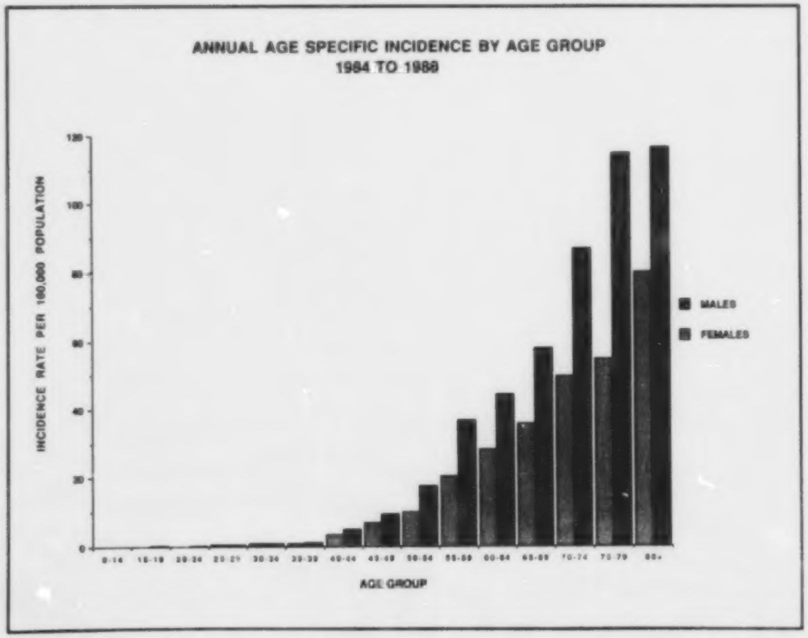
# RECTUM

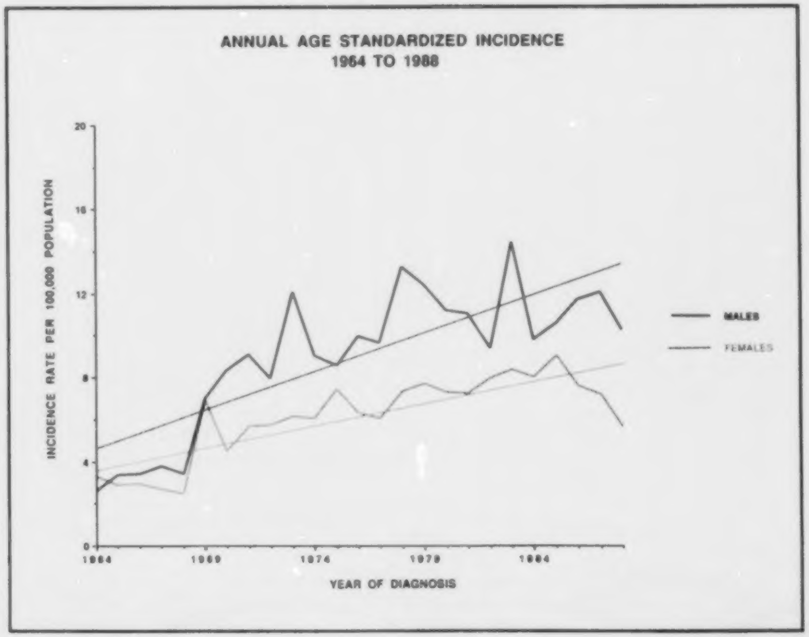
Rectal cancer is extremely rare in young persons but compared to other site groups, its total incidence ranks tenth highest for females and eighth for males. Incidence was 0.5 per 100,000 for females aged 25 to 29 years and increased in older females to reach a maximum of 81.8. For males younger than 29 years the incidence rate did not exceed 1.0 per 100,000 but increases in incidence occurred in all age groups thereafter to reach a maximum of 115.9. In the older age categories male incidence was at least 1.5 times female incidence and the ratio peaked at 2.1 for the 75 to 79 year age group.

Both female and male incidence rates increased between 1964 and 1988. In 1964 the incidence rate for females was 3.3 and increases occurred in most years until 1985 when incidence peaked at 9.0. Since then incidence declined to 5.6 in 1988. The trend line for females has a slope of 0.209 (↑) and demonstrates an increase of 140%. On average, 4.8 years were required for the incidence rate to increase by one case.

Male incidence was 2.6 in 1964 and achieved a maximum of 14.4 in 1983. By 1988 the rate was 10.3. The slope of the trend line is 0.366 (↑) and demonstrates an increase of 192%. 2.7 years were required to increase incidence by one case.

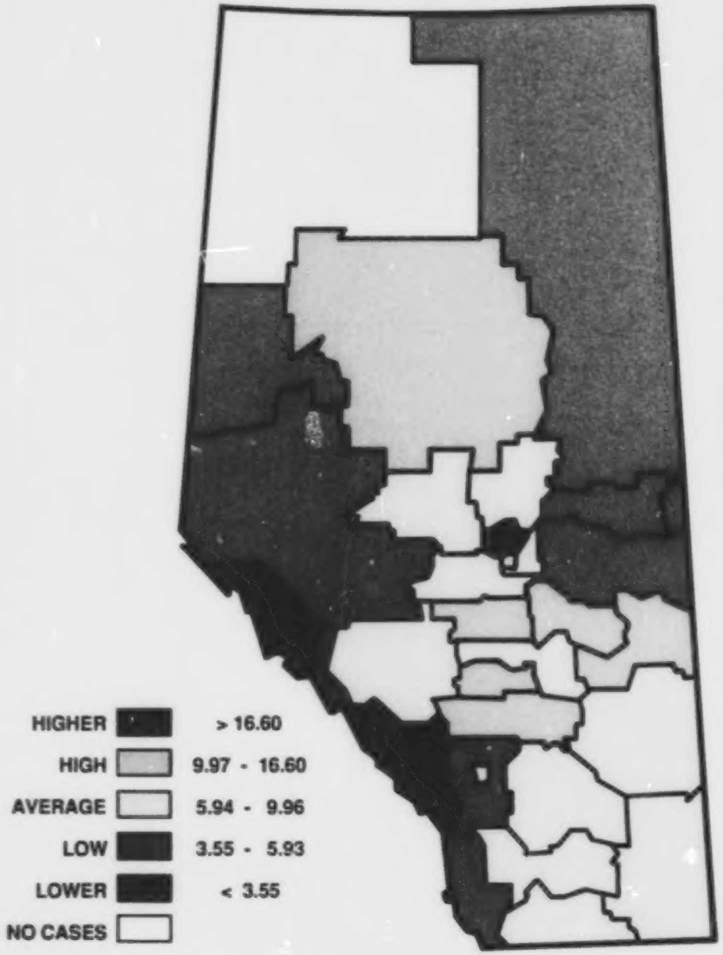
The provincial incidence rates for the mapped data were 7.7 per 100,000 for females and 10.7 for males. On the map of female rates, no areas had higher incidence and 6 areas were high. Lower incidence was observed in 2 areas and 7 areas were low. No cases were recorded in 1 area. The map of male rates shows no areas with higher incidence and 4 classed as high. Lower incidence was observed in 4 areas and 4 areas were low. No cases were recorded in 1 area. Mapped area 15 was above average on both maps while mapped areas 3, 26 and 29 were below average for both females and males.



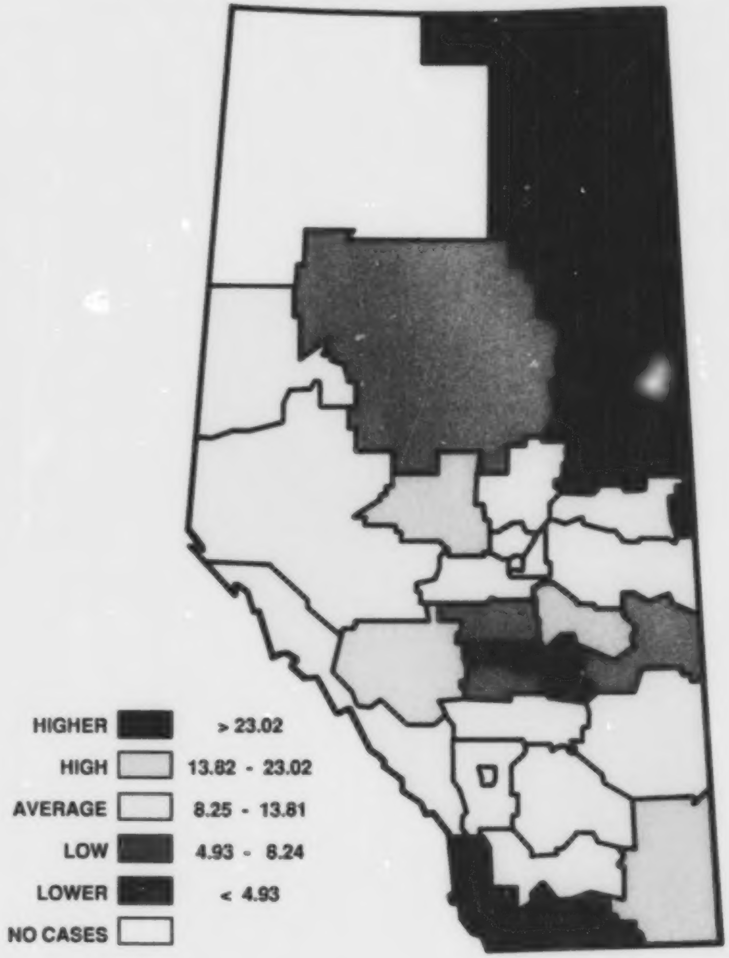


## ICD-9 CODES 154.1 TO 154.8

FEMALES


HIGHER > 16.60
HIGH 9.97 - 16.60
AVERAGE 5.94 - 9.96
LOW 3.55 - 5.93
LOWER < 3.55
NO CASES

MALES


HIGHER > 23.02
HIGH 13.82 - 23.02
AVERAGE 8.25 - 13.81
LOW 4.93 - 8.24
LOWER < 4.93
NO CASES
D

# RECTUM

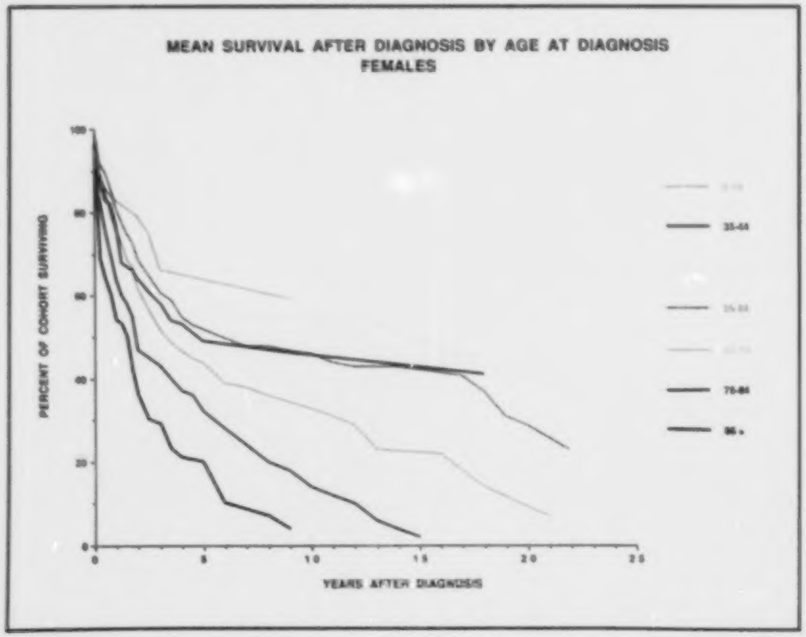
The survival experience of persons diagnosed with cancer of the rectum is shown. Median survival periods are tabulated for all age groups. Females aged 0 to 34 had the longest median survival of 20 years which was 31% of the expected survival period. Females aged 45 to 54 had a median survival period of 15 years which was 46% of their anticipated life expectancy. Other age groups survived between 20% and 30% of their anticipated survival period.

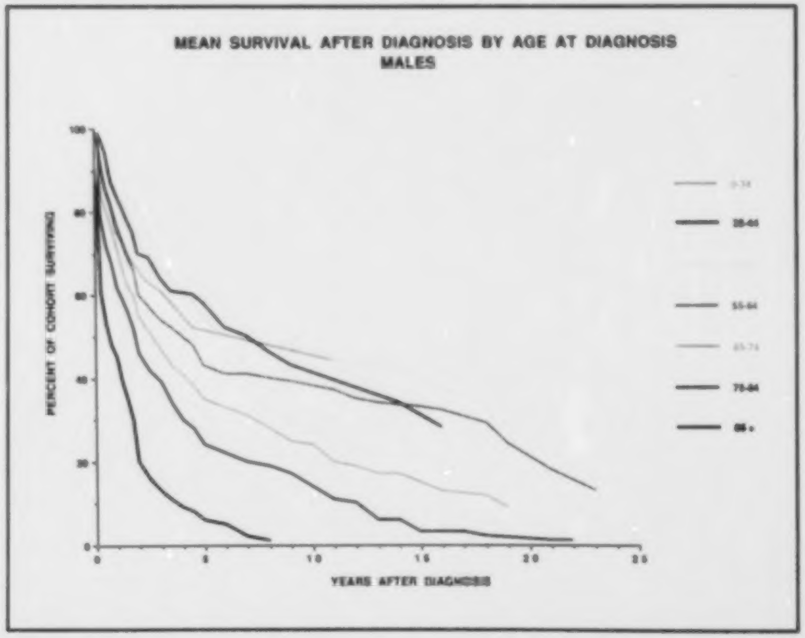
Males in the youngest age group experienced a median survival time of 11 years which was just 19% of their expected survival. Median survival times ranged between 17% and 28% of the anticipated life expectancy for other age groups.

Female median survival times exceeded those of males. The largest difference was experienced in the 45 to 54 age group where median female survival exceeded the male value by 8.3 years. Females of this age lived 46% of their anticipated life expectancy compared to just 24% for males.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 25 | 20.0 | 63.9 | 43.9 | 31% |
| 35-44 | 70 | 9.6 | 41.7 | 32.1 | 23% |
| 45-54 | 191 | 15.0 | 32.4 | 17.4 | 46% |
| 55-64 | 395 | 5.3 | 23.7 | 17.9 | 25% |
| 65-74 | 435 | 3.5 | 15.8 | 12.3 | 22% |
| 75-84 | 334 | 2.4 | 9.1 | 6.7 | 27% |
| 85+ | 123 | 1.7 | 6.0 | 4.3 | 28% |
| MALES | | | | | |
| 0-34 | 47 | 11.2 | 57.7 | 46.5 | 19% |
| 35-44 | 85 | 6.8 | 36.6 | 29.8 | 18% |
| 45-54 | 280 | 6.7 | 27.3 | 20.6 | 24% |
| 55-64 | 592 | 4.2 | 19.2 | 15.0 | 22% |
| 65-74 | 713 | 3.0 | 12.3 | 9.3 | 24% |
| 75-84 | 523 | 2.0 | 7.2 | 5.2 | 28% |
| 85+ | 146 | 0.8 | 5.0 | 4.2 | 17% |





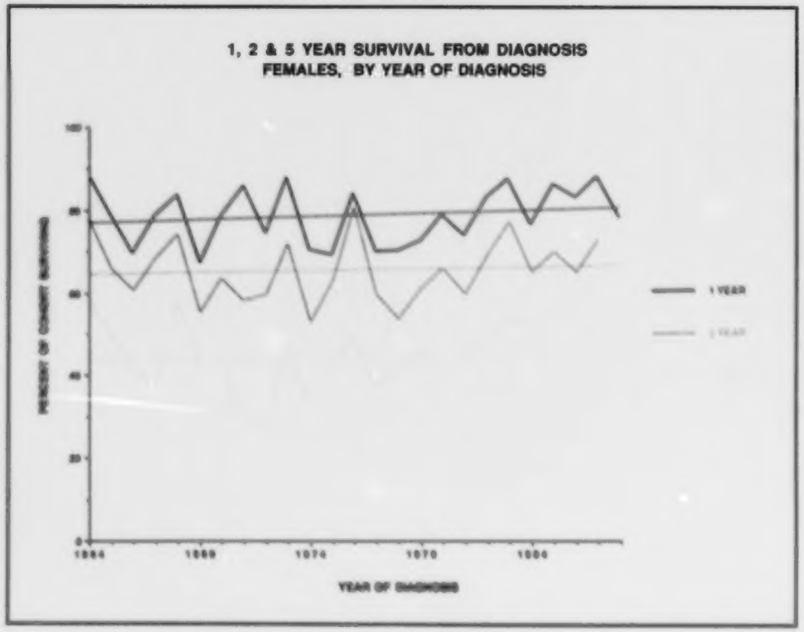
# ICD-9 CODES 154.1 TO 154.8

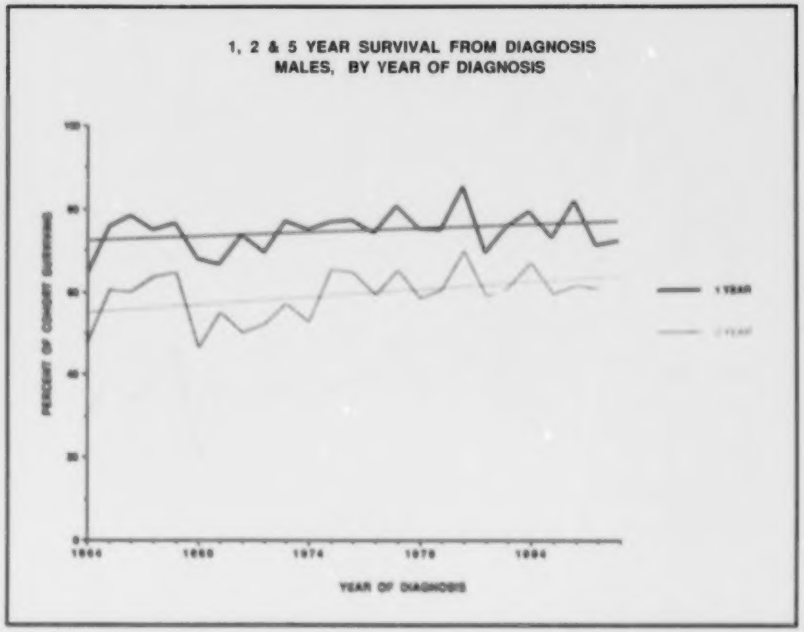
Compared to all other site groups, female one, two, and five year survival rates ranked in the middle of the range. Annual variation in the rates was relatively large despite a reasonable number of cases each year. The average number of females diagnosed with this cancer was 59 per year and the annual number of cases was never lower than 17.

The slopes of the female trend lines are: one year = 0.145 (↔), two year = 0.080 (↔) and five year = 0.049 (↔). According to the trend lines, one year survival rates began the interval at 77.0% and increased slightly to 80.4% in 1988. Two year survival rates (trend line) increased slightly from 64.5% in 1964 to 66.4% in 1988. On average, two year rates were 83% of one year rates. Five year survival rates (trend line) began the interval at 43.6% and increased slightly to 44.8% in 1988. They averaged 55% of one year survival rates.

For males, the one, two, and five year survival rates ranked ninth highest. Annual variation in the rates was relatively large despite a reasonable number of cases each year. The average number of males diagnosed with this cancer was 90 per year and the annual number of cases was never lower than 19.

The slopes of the male trend lines are: one year = 0.193 (↔), two year = 0.362 (↑) and five year = 0.483 (↑). According to the trend lines, one year survival rates began the interval at 72.4% and increased to 77.1% in 1988. Two year survival rates (trend line) increased from 55.0% in 1964 to 63.7% in 1988. On average, two year rates were 79% of one year rates. Five year survival rates (trend line) began the interval at 32.6% and increased to 44.2% in 1988. They averaged 50% of one year survival rates.





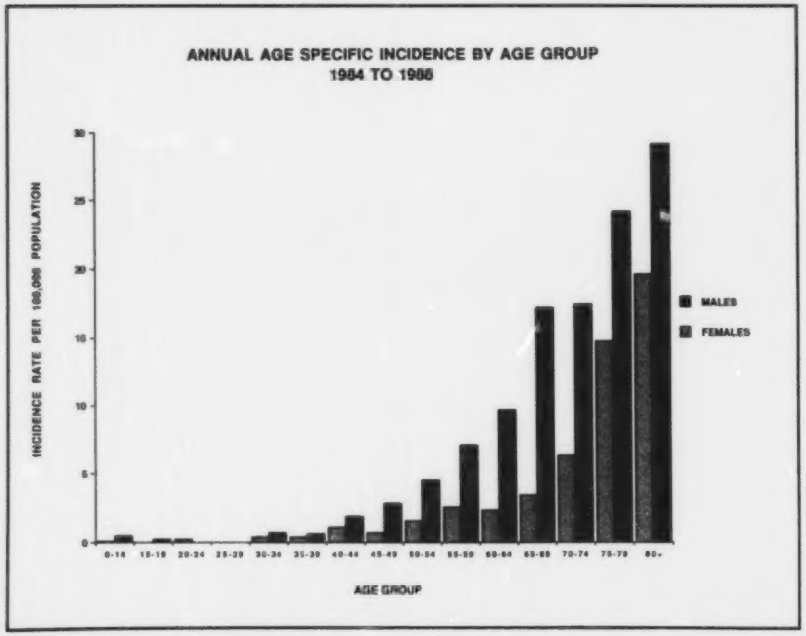
# LIVER

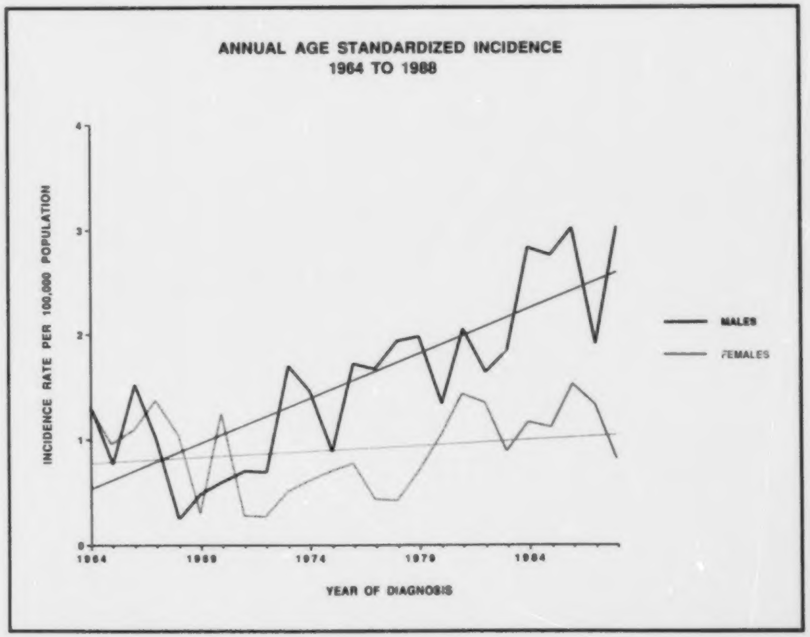
Compared to other cancer sites, the incidence of liver cancer was relatively low. The one sub-group in which liver cancer appeared more common was males aged 0 to 14 years where the incidence rate of 0.4 per 100,000 represented 3.0% of all cancers affecting this sub-group.

For all age groups but one, male incidence rates for liver cancer exceeded female rates. In 65 to 69 year olds, the male incidence rate was 4.8 times the female rate. Relative differences between rates declined in older age groups. The highest incidence rates were recorded in the oldest age groups; 19.9 for females and 28.7 for males.

Female rates showed marked fluctuation during the interval, reaching a low of 0.3 in 1969, 1971 and 1972 and a maximum of 1.5 in 1986. The slope of the trend line for females is 0.011 (↔). Male incidence reached a minimum of 0.2 in 1968 and climbed through most of the next 20 years. The maximum incidence of 3.0 was recorded in both 1986 and 1988. The trend line has a slope of 0.085 (↑) and shows an increase of 386% during the interval. 11.7 years were required for incidence to increase by one case per 100,000. Whereas female and male rates were similar in the early years of the period, in 1988 male incidence was approximately three times the female rate.

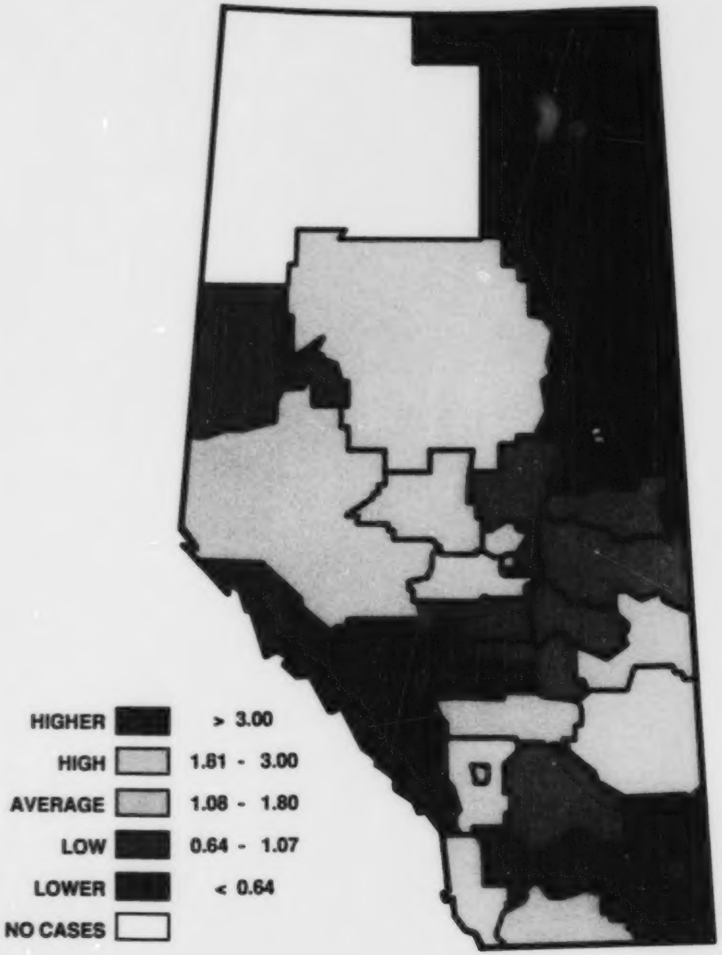
The provincial incidence rates for the mapped data were 1.4 per 100,000 for females and 2.7 for males. On the map of female rates, 3 areas had higher incidence and 6 areas were high. Lower incidence was observed in 3 areas and 9 areas were low. No cases were recorded in 1 area. The map of male rates shows 1 area with higher incidence and 7 classed as high. Lower incidence was observed in 8 areas and 6 areas were low. No cases were recorded in 1 area. Mapped areas 3, 7, 20 and 26 were above average on both maps while mapped areas 12, 13, 16, 17, 18, 28 and 29 were below average for both genders.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1984 TO 1988

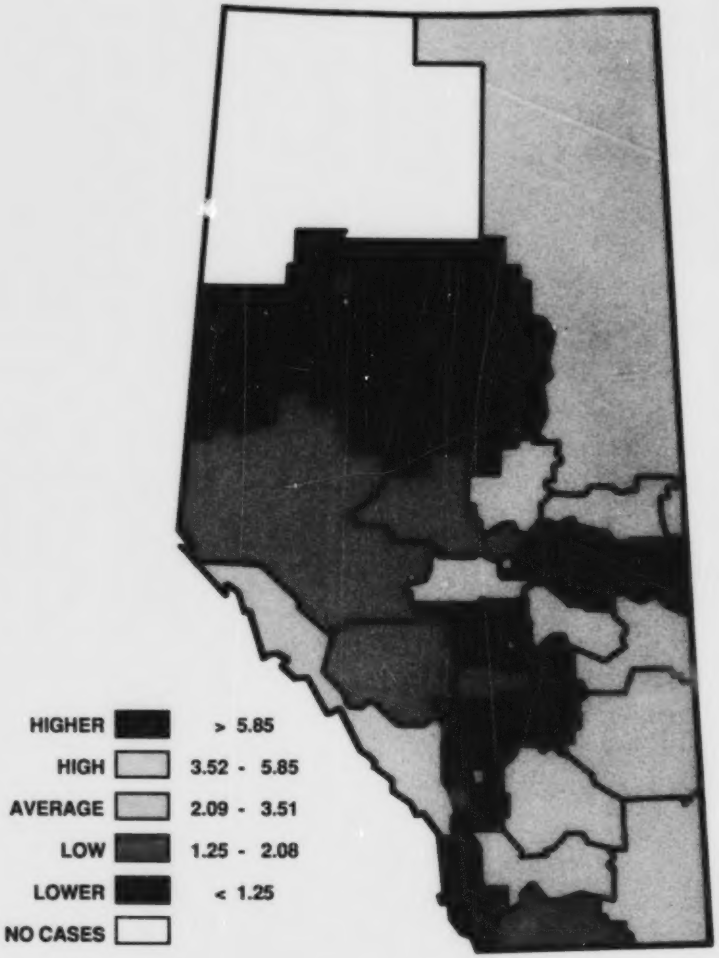

ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

# ICD-9 CODE 155

## FEMALES


HIGHER > 3.00
HIGH 1.81 - 3.00
AVERAGE 1.08 - 1.80
LOW 0.64 - 1.07
LOWER < 0.64
NO CASES

## MALES

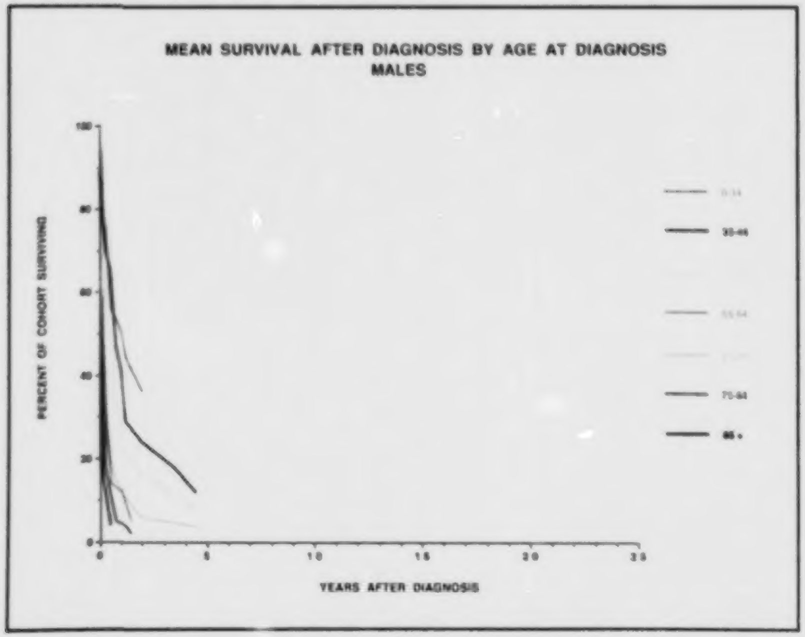

HIGHER > 5.85
HIGH 3.52 - 5.85
AVERAGE 2.09 - 3.51
LOW 1.25 - 2.08
LOWER < 1.25
NO CASES

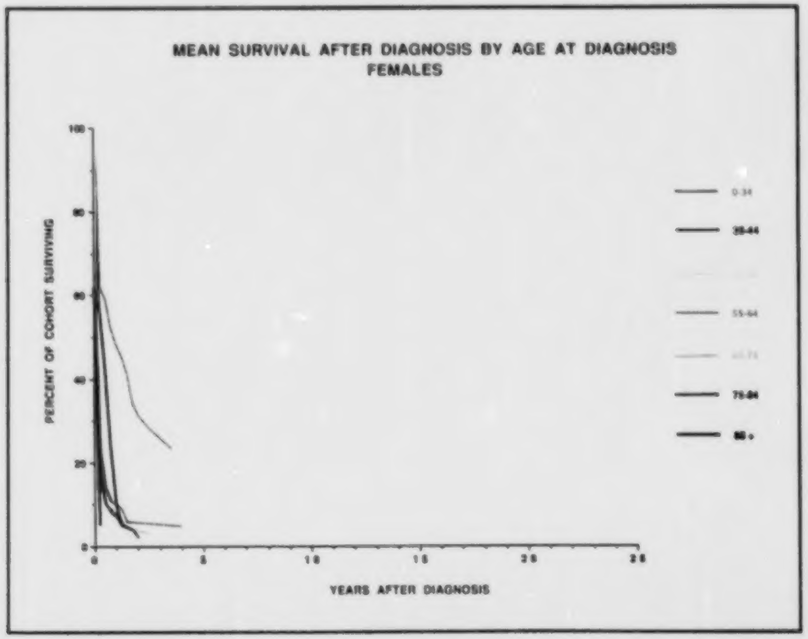
# LIVER

The survival experience of persons diagnosed with cancer of the liver is shown. Median survival periods are tabulated and these were very short for all age groups in both genders. The longest median survival period was 17 months and no group had a median survival period greater than 2% of their anticipated life expectancy.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 16 | 1.4 | 63.9 | 62.5 | 2% |
| 35-44 | 17 | 0.8 | 41.7 | 40.9 | 2% |
| 45-54 | 19 | 0.7 | 32.4 | 31.7 | 2% |
| 55-64 | 40 | 0.2 | 23.7 | 23.5 | 1% |
| 65-74 | 45 | 0.2 | 15.8 | 15.6 | 1% |
| 75-84 | 56 | 0.1 | 9.1 | 9.0 | 1% |
| 85+ | 25 | 0.1 | 6.0 | 5.9 | 1% |
| MALES | | | | | |
| 0-34 | 29 | 1.0 | 57.7 | 56.7 | 2% |
| 35-44 | 21 | 0.5 | 36.6 | 36.1 | 1% |
| 45-54 | 45 | 0.2 | 27.3 | 27.1 | 1% |
| 55-64 | 88 | 0.2 | 19.2 | 19.0 | 1% |
| 65-74 | 117 | 0.1 | 12.3 | 12.2 | 1% |
| 75-84 | 88 | 0.1 | 7.2 | 7.1 | 1% |
| 85+ | 20 | 0.1 | 5.0 | 4.9 | 2% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES

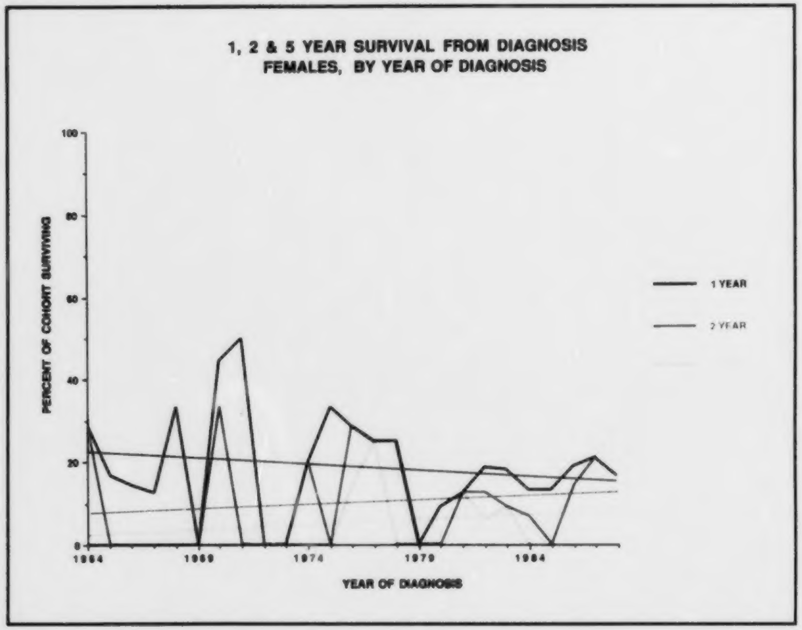
# ICD-9 CODE 155

Compared to all other site groups, female one, two and five year survival rates ranked second lowest. Annual variation in the rates was very large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 9 per year. The lowest number of cases in any year was 2.

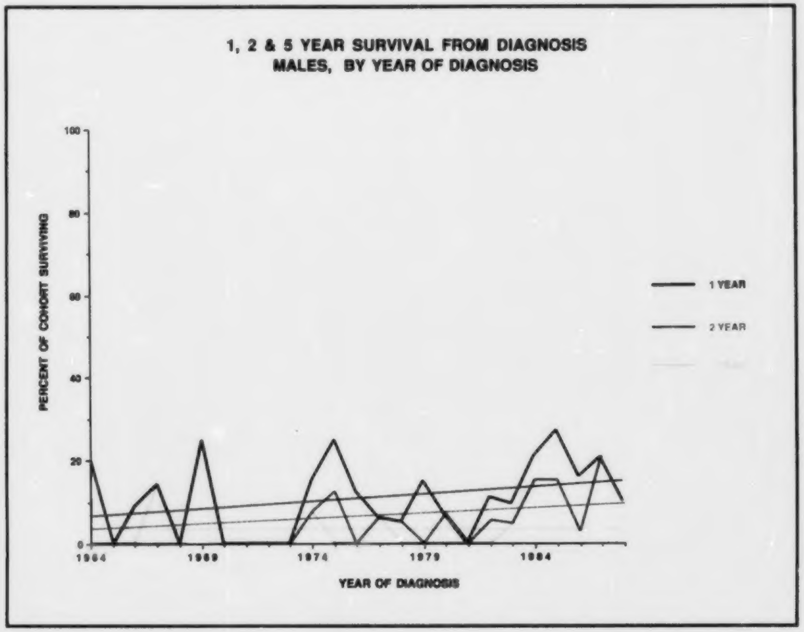
The slopes of the female trend lines are: one year = -0.289 (↔), two year = 0.208 (↔) and five year = 0.246 (↔). According to the trend lines, one year survival rates began the interval at 22.4% and decreased to 15.5% in 1988. Two year survival rates (trend line) increased from 7.5% in 1964 to 12.5% in 1988. On average, two year rates were 49% of one year rates. Five year survival rates (trend line) began the interval at 2.3% and increased to 8.2% in 1988. They averaged 24% of one year survival rates.

For males, the one, two, and five year survival rates ranked second lowest. Annual variation in the rates was relatively large and part of this variation can be explained as a small numbers problem. The average number of males diagnosed with this cancer was 16 per year. In 9 years the number of cases was less than 10.

The slopes of the male trend lines are: one year = 0.356 (↔), two year = 0.243 (↔) and five year = -0.015 (↔). According to the trend lines, one year survival rates began the interval at 6.6% and increased to 15.1% in 1988. Two year survival rates (trend line) increased from 3.5% in 1964 to 9.3% in 1988. On average, two year rates were 66% of one year rates. Five year survival rates (trend line) began the interval at 3.6% and decreased slightly to 3.3% in 1988. They averaged 42% of one year survival rates.



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

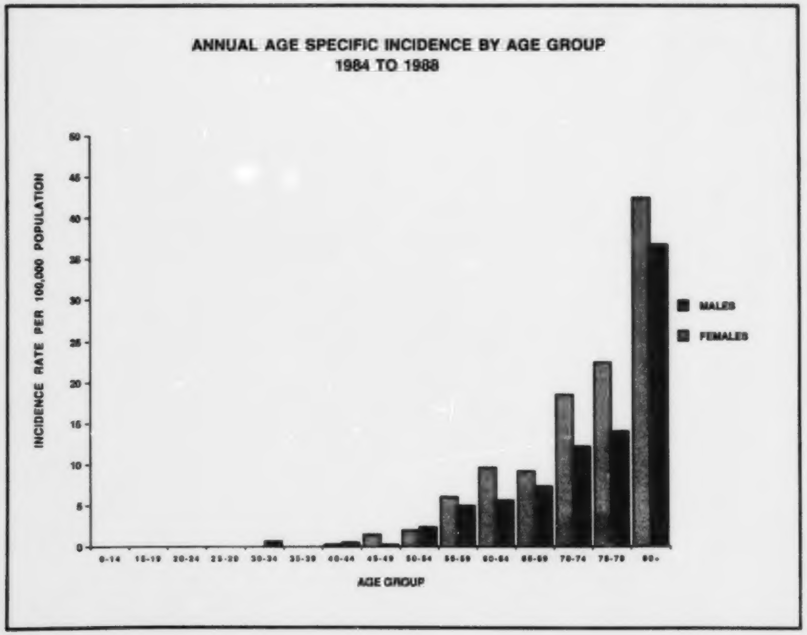
# GALLBLADDER

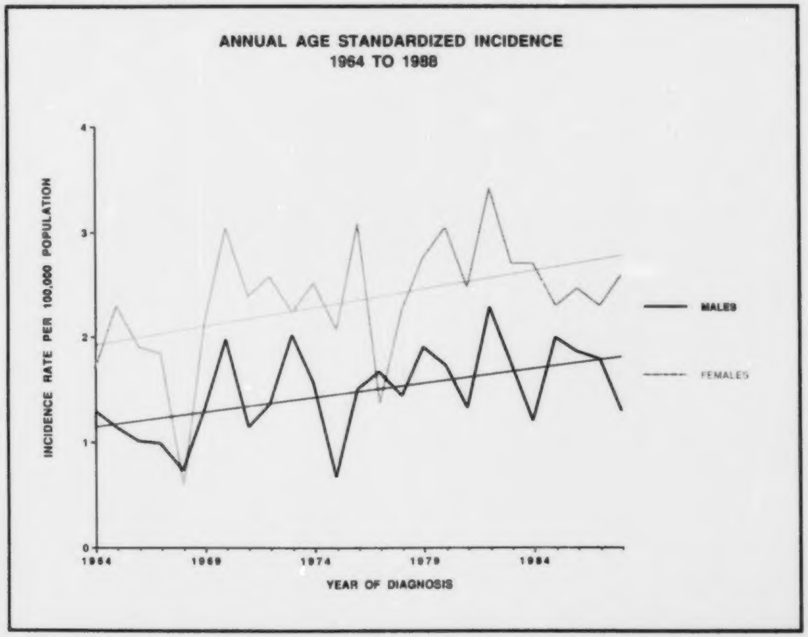
The incidence of cancer of the gallbladder ranked relatively low in comparison to other cancer sites and was very rare in the younger age groups. In persons aged 45 years or older, female incidence rates exceeded those of males. Female rates reached a maximum of 42.9 per 100,000 in the oldest age group and this represented an 89% increase over the rate for 75 to 79 year olds. Similarly, the male rates showed a dramatic increase between the oldest two age categories from 13.9 to 37.4 per 100,000 (a 169% increase).

Female incidence rates exceeded male rates in all but two years between 1964 and 1988. Rates demonstrated much variation but the trend has been for increasing rates. The slope on the trend line is 0.036 (†) representing an increase of 45% over the interval.

The male rate achieved a minimum of 0.7 in both 1968 and 1975 and the highest rate of 2.3 was recorded in 1982. The slope of the trend line is 0.050 (†) representing a 61% increase over the interval. The ratios of female incidence to male incidence (taken from trend lines) were 1.7 in 1964 and 1.6 in 1988.

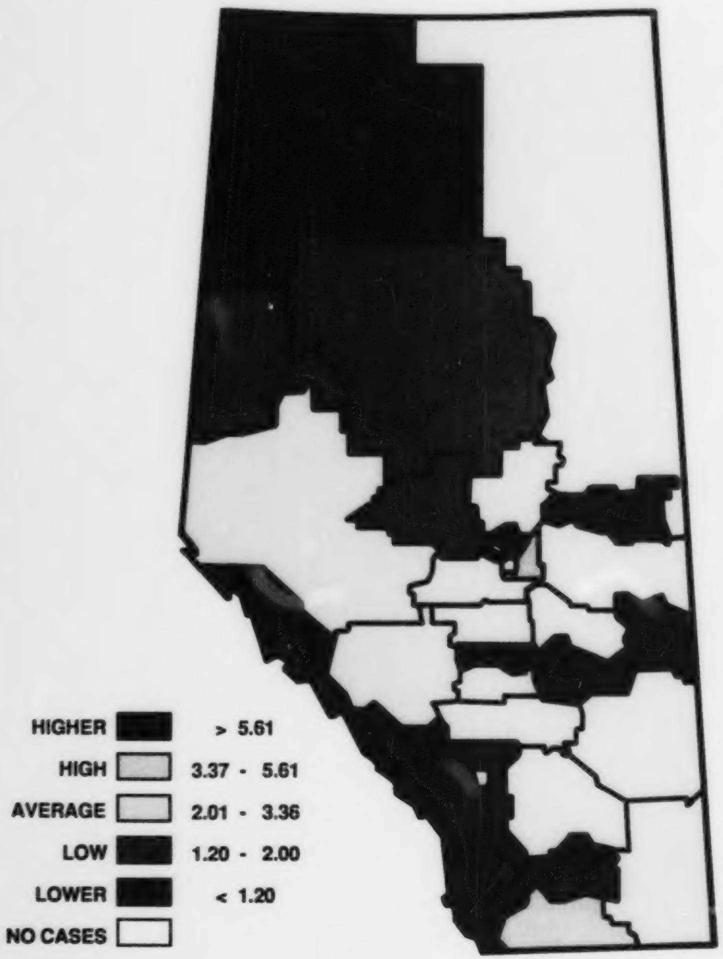
The provincial incidence rates for the mapped data were 2.6 per 100,000 for females and 1.6 for males. On the map of female rates, 4 areas had higher incidence and 2 areas were high. Lower incidence was observed in 4 areas and another 4 areas were low. The map of male rates shows 1 area with higher incidence and 9 classed as high. Lower incidence was observed in 4 areas and 7 areas were low. No cases were recorded in 1 area. Mapped areas 2, 3 and 7 were above average on both maps while mapped areas 4, 8, 12, 22 and 24 were below average for both females and males.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1984 TO 1988

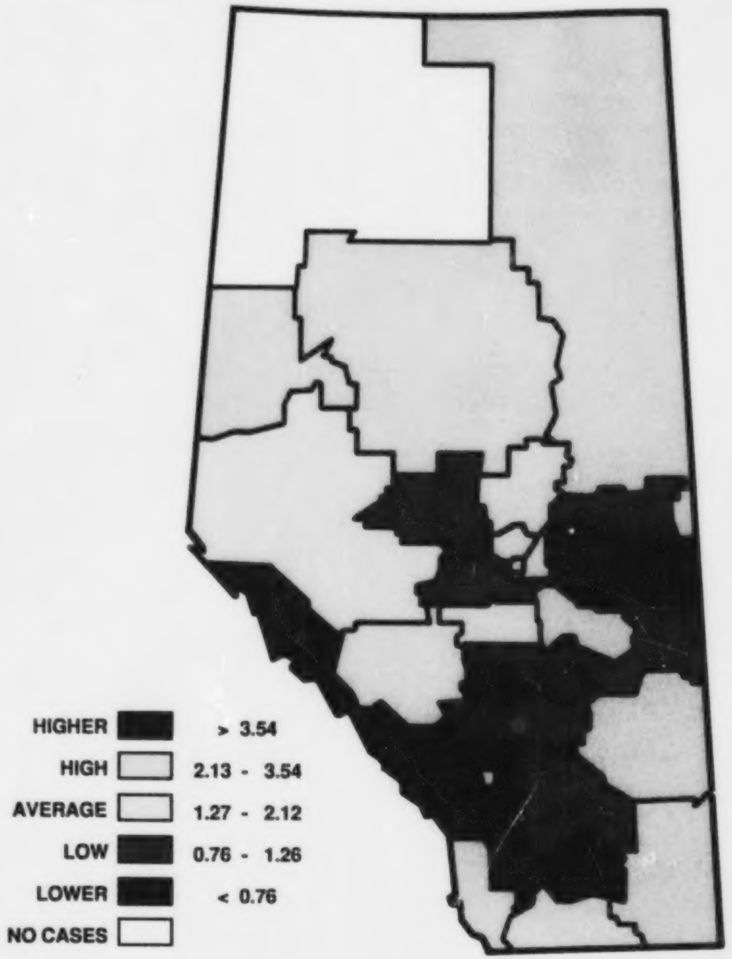

ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

# ICD-9 CODES 156

FEMALES


HIGHER ▇ > 5.61
HIGH ▒ 3.37 - 5.61
AVERAGE ░ 2.01 - 3.36
LOW ▇ 1.20 - 2.00
LOWER ▇ < 1.20
NO CASES ☐

MALES


HIGHER ▇ > 3.54
HIGH ▒ 2.13 - 3.54
AVERAGE ░ 1.27 - 2.12
LOW ▇ 0.76 - 1.26
LOWER ▇ < 0.76
NO CASES ☐

# GALLBLADDER

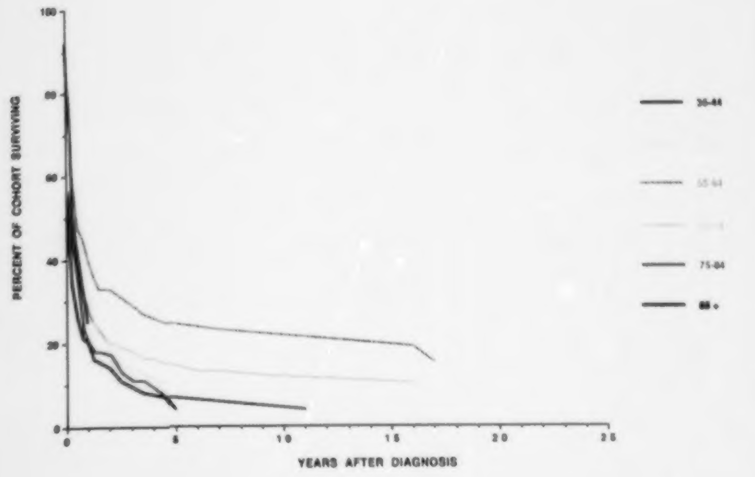
The survival experience of persons diagnosed with cancer of the gallbladder is shown. Median survival periods are tabulated for all age groups except the youngest females where the single case survived 11 months. Median survival times were very short, the maximum being 2.0 years for males aged 0 to 34 years and 1.9 years for males aged 35 to 44 years. Median survival times for all other age groups were one year or less.

The median survival time compared to the anticipated life expectancy did not exceed 5% in any age category of either gender.

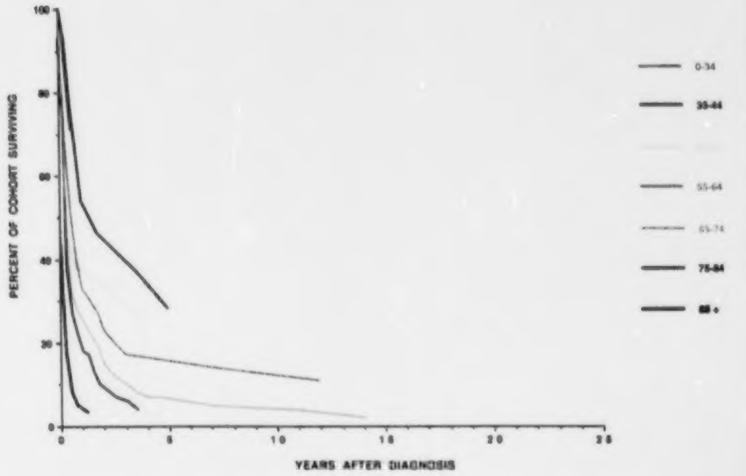
LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 1 | -- | 63.9 | -- | -- |
| 35-44 | 4 | 1.0 | 41.7 | 40.7 | 2% |
| 45-54 | 51 | 0.4 | 32.4 | 32.0 | 1% |
| 55-64 | 122 | 0.7 | 23.7 | 23.0 | 3% |
| 65-74 | 181 | 0.5 | 15.8 | 15.3 | 3% |
| 75-84 | 144 | 0.3 | 9.1 | 8.8 | 4% |
| 85+ | 70 | 0.2 | 6.0 | 5.8 | 3% |
| MALES | | | | | |
| 0-34 | 7 | 2.0 | 57.7 | 55.7 | 3% |
| 35-44 | 13 | 1.9 | 36.6 | 34.7 | 5% |
| 45-54 | 29 | 0.6 | 27.3 | 26.7 | 2% |
| 55-64 | 83 | 0.8 | 19.2 | 18.4 | 4% |
| 65-74 | 113 | 0.4 | 12.3 | 11.9 | 3% |
| 75-84 | 92 | 0.3 | 7.2 | 6.9 | 3% |
| 85+ | 38 | 0.1 | 5.0 | 4.9 | 2% |

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES



MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

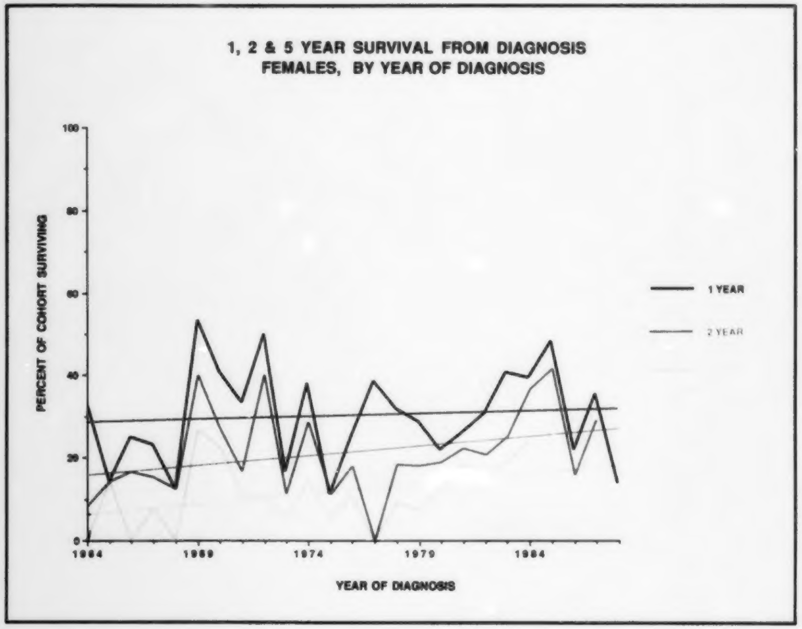


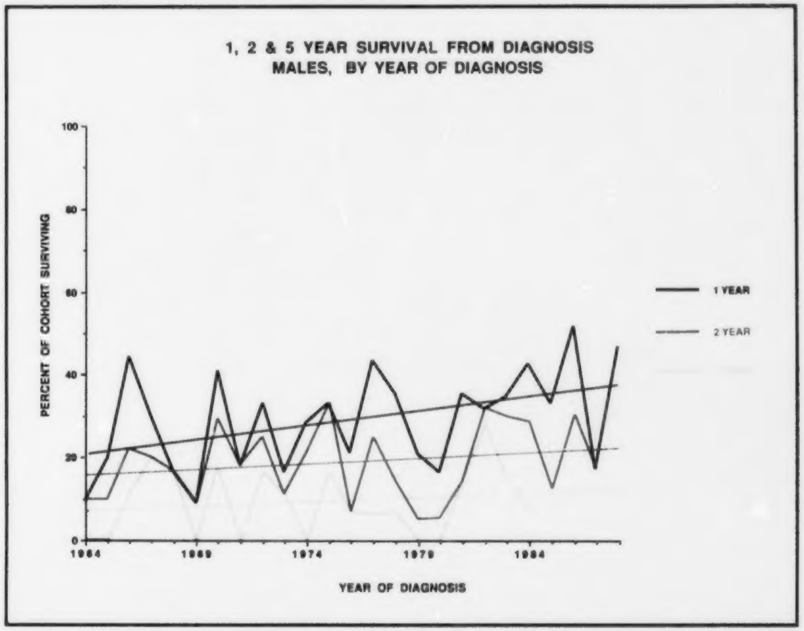
Compared to all other site groups, female one, two, and five year survival rates were similar to those of females diagnosed with cancer of the stomach and were ranked seventh lowest. Annual variation in the rates was very large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 23 per year. In 2 years the number of cases was less than 10.

The slopes of the female trend lines are: one year = 0.124 (↔), two year = 0.447 (↔) and five year = 0.484 (↔). According to the trend lines, one year survival rates began the interval at 28.7% and increased slightly to 31.6% in 1988. Two year survival rates (trend line) increased from 15.9% in 1964 to 26.6% in 1988. On average, two year rates were 68% of one year rates. Five year survival rates (trend line) began the interval at 6.3% and increased to 17.9% in 1988. They averaged 42% of one year survival rates.

For males, the one, two and five year survival rates ranked sixth lowest. Annual variation in the rates was relatively large and part of this variation can be explained as a small numbers problem. The average number of males diagnosed with this cancer was 15 per year. The lowest number of cases in any year was 6.

The slopes of the male trend lines are: one year = 0.706 (↑), two year = 0.278 (↔) and five year = 0.214 (↔). According to the trend lines, one year survival rates began the interval at 21.0% and increased to 37.9% in 1988. Two year survival rates (trend line) increased from 15.5% in 1964 to 22.2% in 1988. On average, two year rates were 63% of one year rates. Five year survival rates (trend line) began the interval at 7.1% and increased to 12.3% in 1988. They averaged 33% of one year survival rates.





# PANCREAS

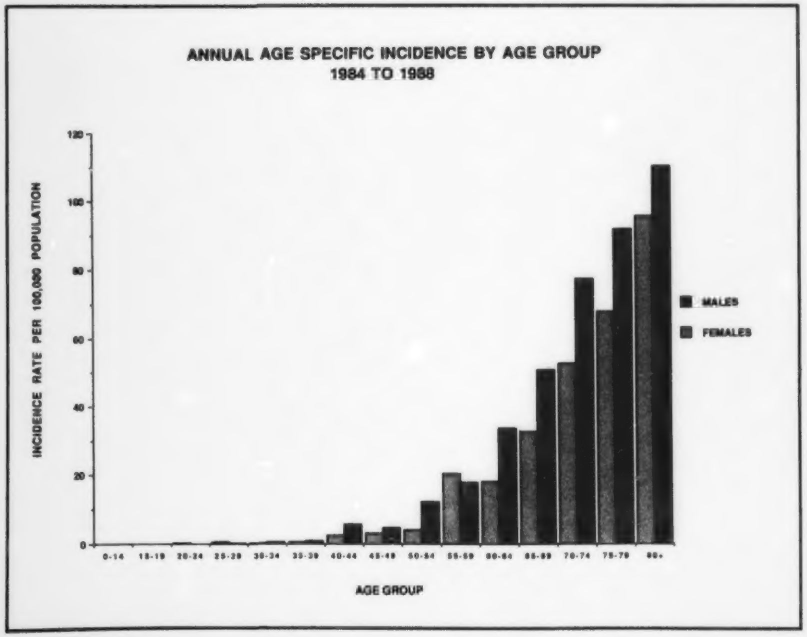
Cancer of the pancreas was rare in persons under the age of 40, after which incidence rates increased with each older age group. Female rates were 2.6 per 100,000 in the 40 to 44 age group and they reached a maximum of 95.2 in the oldest females. Corresponding values for males were 4.9 and 109.2. Male rates were usually greater than female rates and the largest proportional difference between rates occurred amongst 50 to 54 year olds where the male rate was three times that of females.

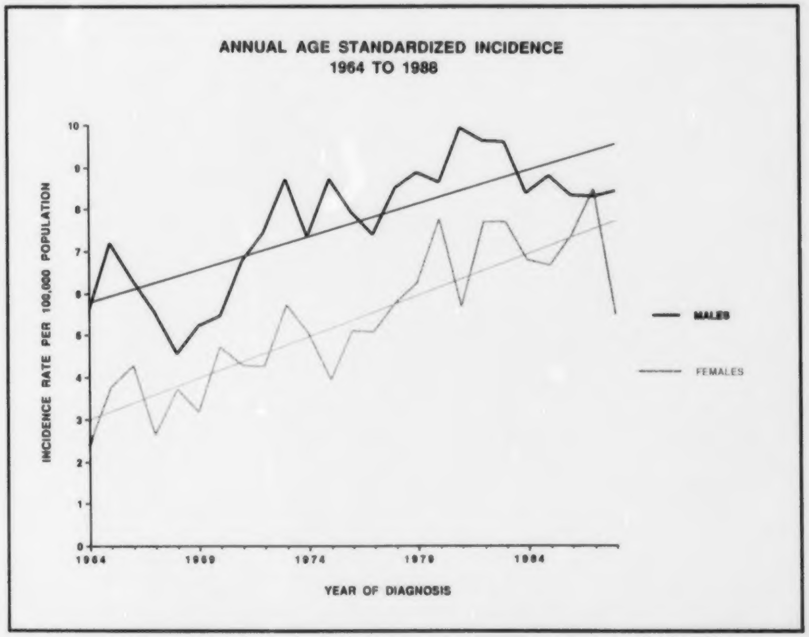
Both female and male cancer rates increased during the 1964 to 1988 interval which may be due in part to improved diagnostic techniques.

Male rates exceeded female rates in all years except 1987, when the female rate peaked at 8.4. The trend line for females has a slope of 0.196 (↑) and shows an increase of 158% over the interval. Incidence increased by one case every 5.1 years.

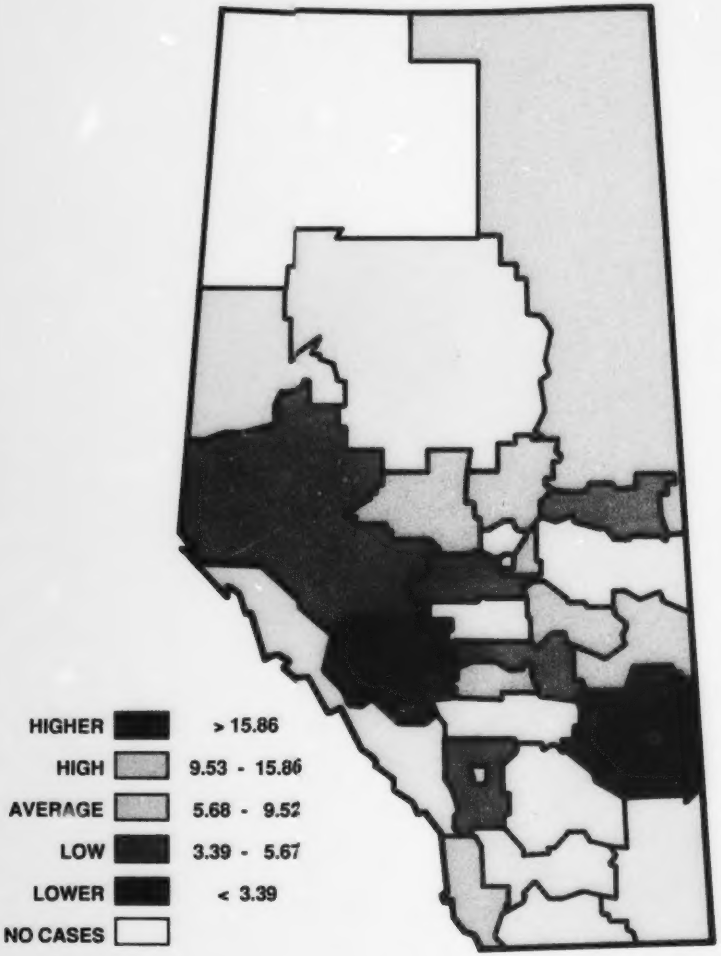
Male incidence was lowest in 1968 (4.5 per 100,000) and increased through most of the next 20 years. The slope of the male trend line is 0.158 (↑) and demonstrates an increase of 66% over the interval. Incidence increased by one case every 6.3 years. The ratios of male incidence to female incidence (taken from trend lines) were 1.9 in 1964 and 1.2 in 1988.

The provincial incidence rates for the mapped data were 7.4 per 100,000 for females and 8.4 for males. On the map of female rates, no areas had higher incidence and 8 areas were high. Lower incidence was observed in 2 areas and 5 areas were low. No cases were recorded in 1 area. The map of male rates shows no areas with higher incidence and 3 classed as high. Lower incidence was observed in 1 area and 5 areas were low. No cases were recorded in 1 area. Mapped areas 9, 20, 21 and 29 were below average on both maps.

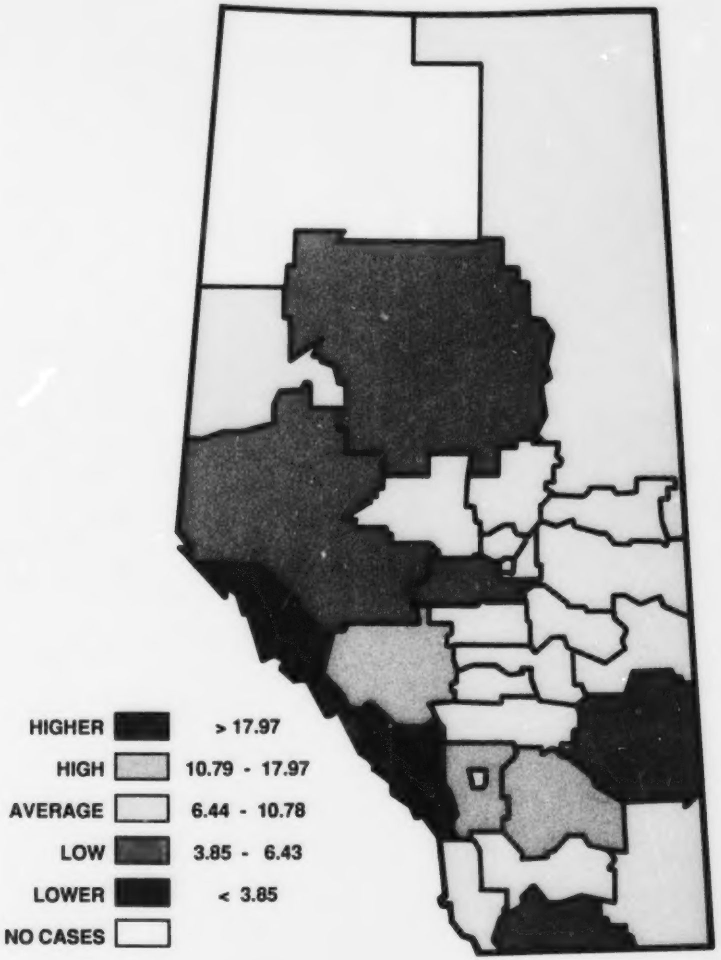




FEMALES


HIGHER
> 15.86
HIGH
9.53 - 15.86
AVERAGE
5.68 - 9.52
LOW
3.39 - 5.67
LOWER
< 3.39
NO CASES

MALES


HIGHER
> 17.97
HIGH
10.79 - 17.97
AVERAGE
6.44 - 10.78
LOW
3.85 - 6.43
LOWER
< 3.85
NO CASES

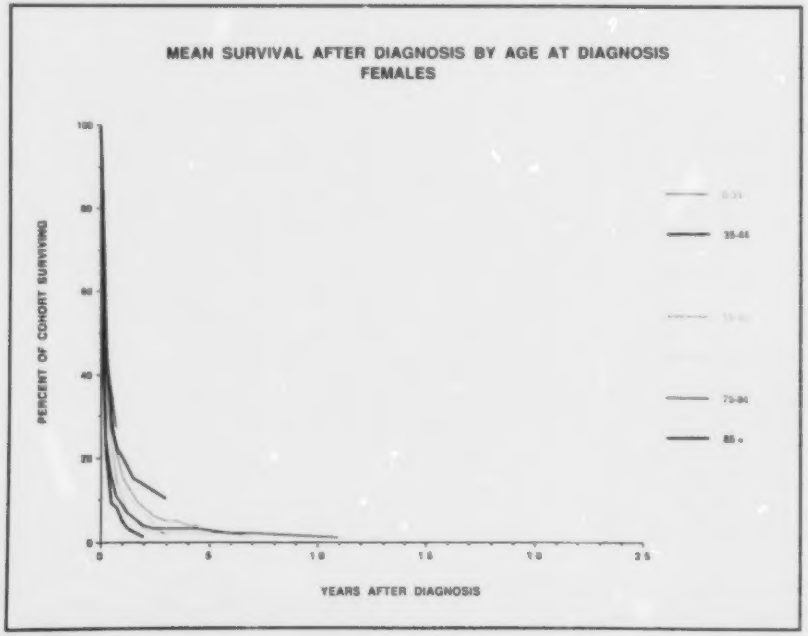
# PANCREAS

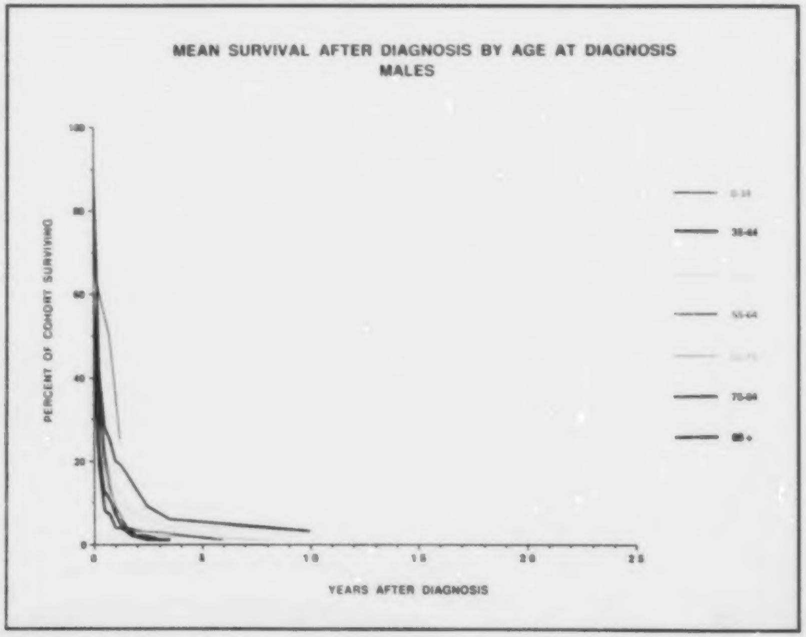
The survival experience of persons diagnosed with cancer of the pancreas is shown and median survival times are tabulated. Median survival periods were very short, less than six months for all age groups except the youngest group of males. This group, which included 8 persons, experienced a median survival time of 13 months.

The median survival time compared to the anticipated life expectancy did not exceed 3% in any age category of either gender.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 11 | 0.3 | 63.9 | 63.6 | 1% |
| 35-44 | 41 | 0.4 | 41.7 | 41.3 | 1% |
| 45-54 | 98 | 0.3 | 32.4 | 32.1 | 1% |
| 55-64 | 269 | 0.3 | 23.7 | 23.4 | 1% |
| 65-74 | 412 | 0.3 | 15.8 | 15.5 | 2% |
| 75-84 | 340 | 0.2 | 9.1 | 8.9 | 2% |
| 85+ | 152 | 0.2 | 6.0 | 5.8 | 3% |
| MALES | | | | | |
| 0-34 | 8 | 1.1 | 57.7 | 56.6 | 2% |
| 35-44 | 69 | 0.3 | 36.6 | 36.3 | 1% |
| 45-54 | 199 | 0.3 | 27.3 | 27.0 | 1% |
| 55-64 | 445 | 0.3 | 19.2 | 18.9 | 1% |
| 65-74 | 603 | 0.3 | 12.3 | 12.0 | 2% |
| 75-84 | 429 | 0.2 | 7.2 | 7.0 | 2% |
| 85+ | 137 | 0.1 | 5.0 | 4.9 | 2% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES

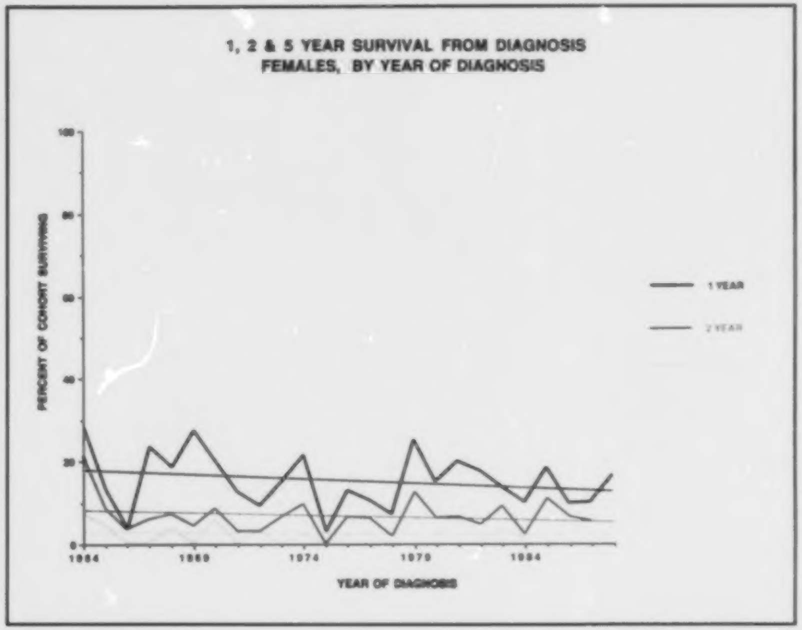

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

Compared to all other site groups, female one, two and five year survival rates ranked lowest. Annual variation in the rates was relatively small and a large number of cases each year contributed to this. The average number of females diagnosed with this cancer was 53 per year and the annual number of cases was never lower than 14.

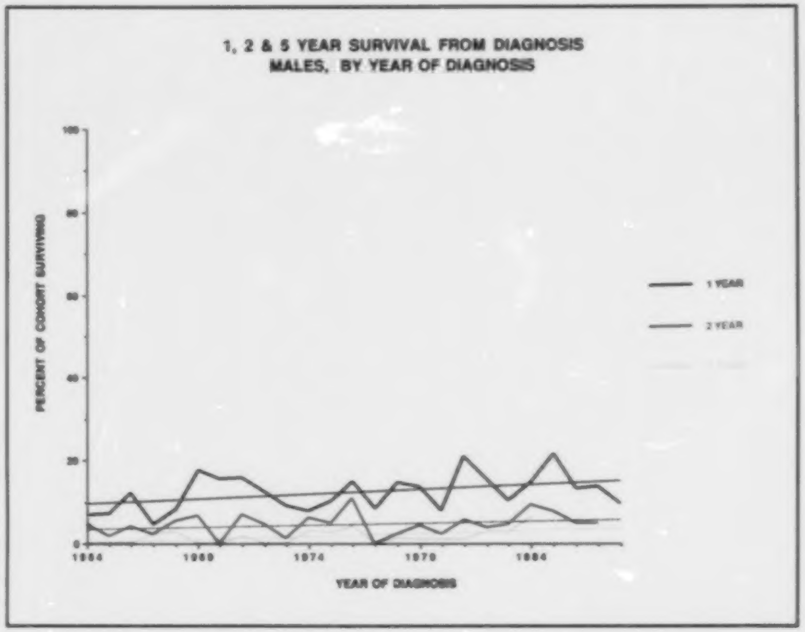
The slopes of the female trend lines are: one year = -0.215 (↔), two year = -0.115 (↔) and five year = -0.024 (↔). According to the trend lines, one year survival rates began the interval at 17.8% and decreased to 12.6% in 1988. Two year survival rates (trend line) decreased slightly from 8.0% in 1964 to 5.3% in 1988. On average, two year rates were 42% of one year rates. Five year survival rates (trend line) began the interval at 2.6% and decreased slightly to 2.0% in 1988. They averaged 19% of one year survival rates.

For males, the one, two, and five year survival rates also ranked lowest. Annual variation in the rates was very small and a large number of cases each year contributed to this. The average number of males diagnosed with this cancer was 75 per year and the annual number of cases was never lower than 36.

The slopes of the male trend lines are: one year = 0.216 (↔), two year = 0.096 (↔) and five year = 0.138 (↑). According to the trend lines, one year survival rates began the interval at 9.6% and increased to 14.8% in 1988. Two year survival rates (trend line) increased slightly from 3.5% in 1964 to 5.8% in 1988. On average, two year rates were 40% of one year rates. Five year survival rates (trend line) began the interval near nil and increased slightly to 3.5% in 1988. They averaged 8% of one year survival rates.



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

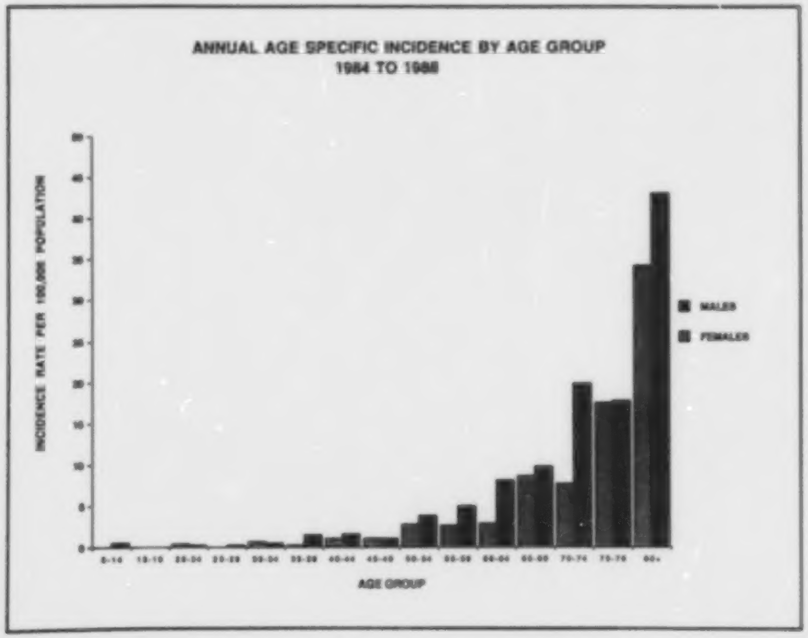
# SMALL INTESTINE, PERITONEUM

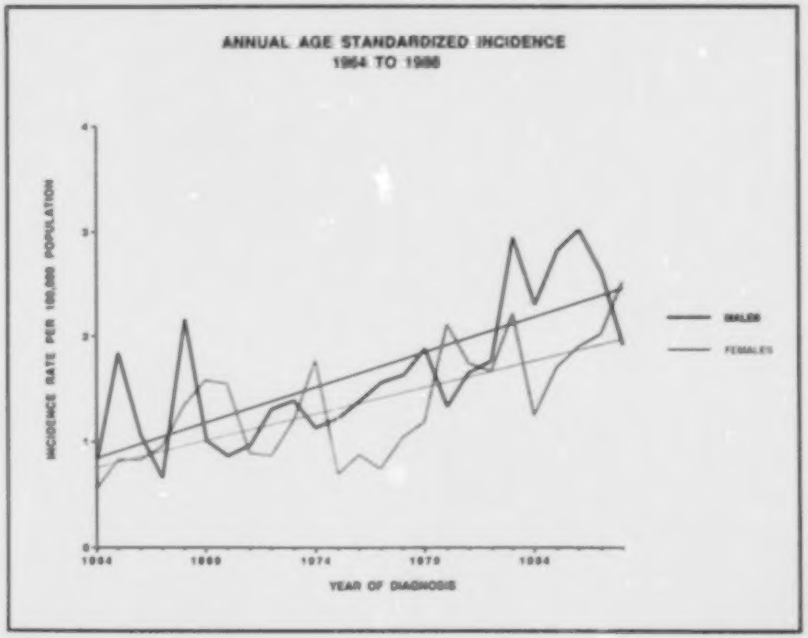
Cancer of the small intestine and peritoneum ranked low in terms of incidence when compared to other cancer sites. This cancer was mostly found in older persons and incidence rates reached a maximum of 34.0 per 100,000 for females and 43.4 for males. Male rates usually exceeded female rates and the ratio of male rates to female rates reached 2.9 in 70 to 74 year olds. The largest increases between age categories occurred between the oldest age groups where female incidence increased by 16.5 (95%) and male incidence increased by 25.7 (145%).

Incidence rates over the 1964 to 1988 interval were characterized by much variation which is due in part to small numbers of cases. Female rates were usually below the male rates. Female incidence was lowest at 0.6 in 1964 and peaked at 2.5 in 1988. The trend line has a slope of 0.051 (↑) and an increase of 162% occurred during the period. The number of years required to increase incidence by one case was 19.7.

Male incidence ranged between 0.7 per 100,000 and 3.0 per 100,000. The slope of the trend line is 0.066 (↑) and an increase of 185% occurred during the period. The number of years required to increase incidence by one case was 15.1.

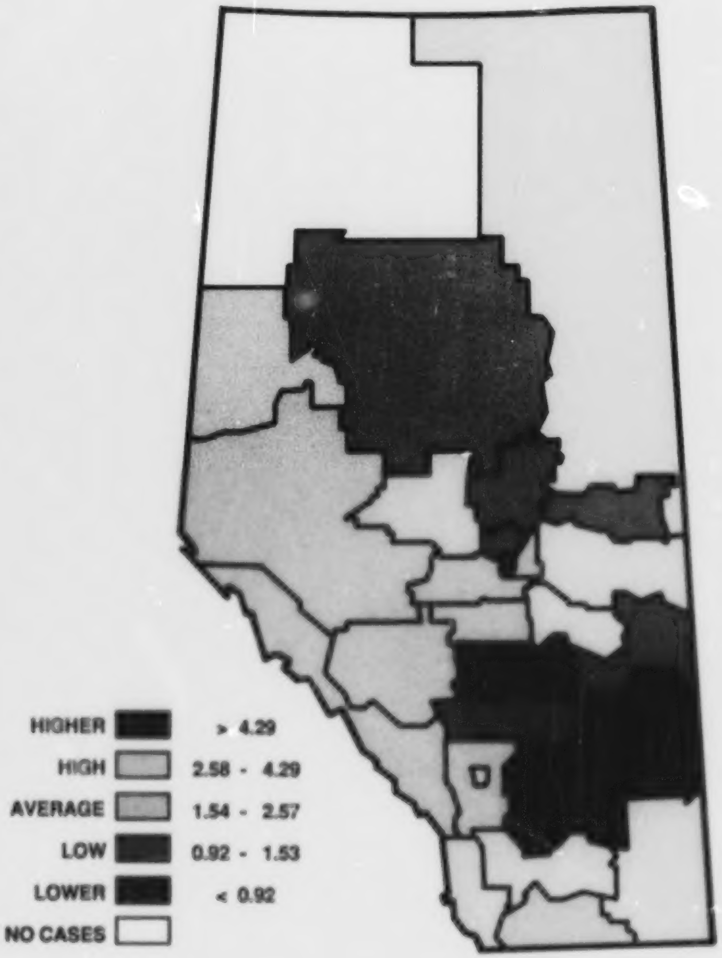
The provincial incidence rates for the mapped data were 2.0 per 100,000 for females and 2.5 for males. On the map of female rates, 2 areas had higher incidence and 8 areas were high. Lower incidence was observed in 2 areas and 7 areas were low. No cases were recorded in 1 area. The map of male rates shows 3 areas with higher incidence and 6 classed as high. Lower incidence was observed in 6 areas and 6 areas were low. No cases were recorded in 1 area. Mapped areas 7, 8, 9, 14 and 21 were above average on both maps while mapped areas 10, 13, 22, 23, 25 and 29 were below average for both genders.



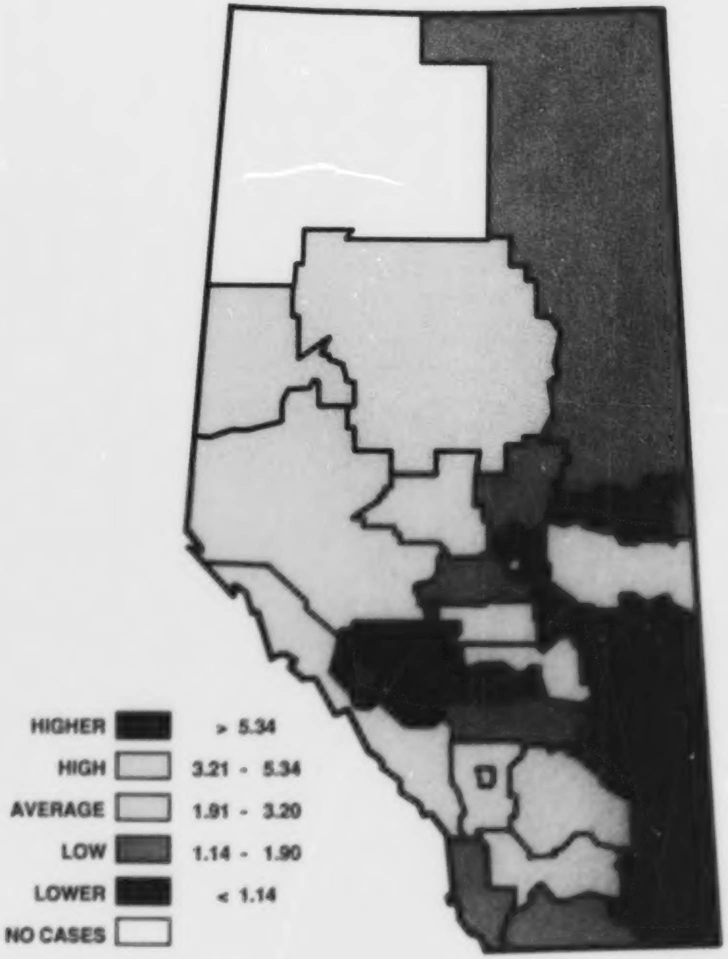


# ICD-9 CODES 152, 158, 159

FEMALES


HIGHER ▆ > 4.29
HIGH ▒ 2.58 - 4.29
AVERAGE ▒ 1.54 - 2.57
LOW ▓ 0.92 - 1.53
LOWER ▆ < 0.92
NO CASES ☐

MALES


HIGHER ▆ > 5.34
HIGH ▒ 3.21 - 5.34
AVERAGE ▒ 1.91 - 3.20
LOW ▓ 1.14 - 1.90
LOWER ▆ < 1.14
NO CASES ☐

# SMALL INTESTINE, PERITONEUM

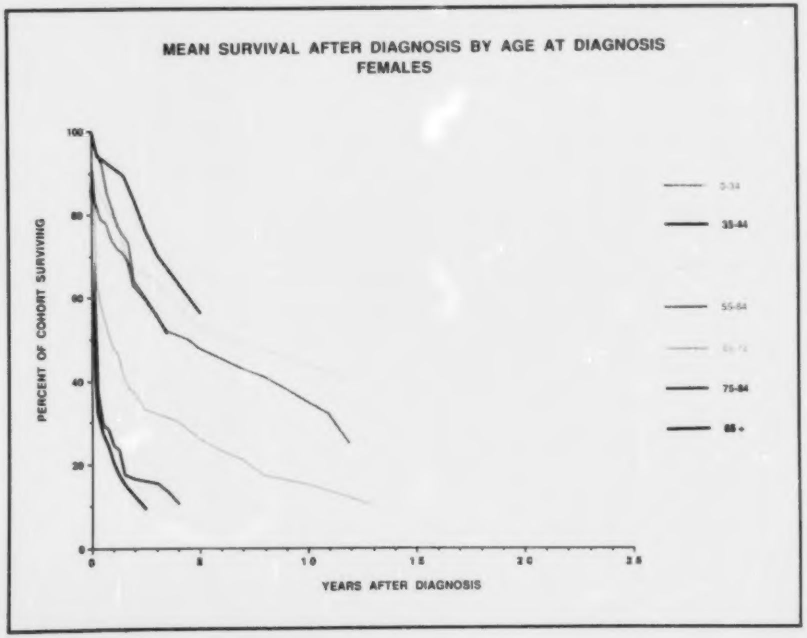
The survival experience of persons diagnosed with cancer of the small intestine or peritoneum is shown. Median survival times are tabulated for all age categories except the youngest two female groups who experienced median survival times greater than the 25 year follow-up interval. Median survival intervals ranged from 7.3 years in females aged 45 to 54 years to 2 months in the oldest females. Females aged 45 to 54 years lived an average of 22% of their anticipated life expectancy but this proportion dropped to 3% in the oldest females.

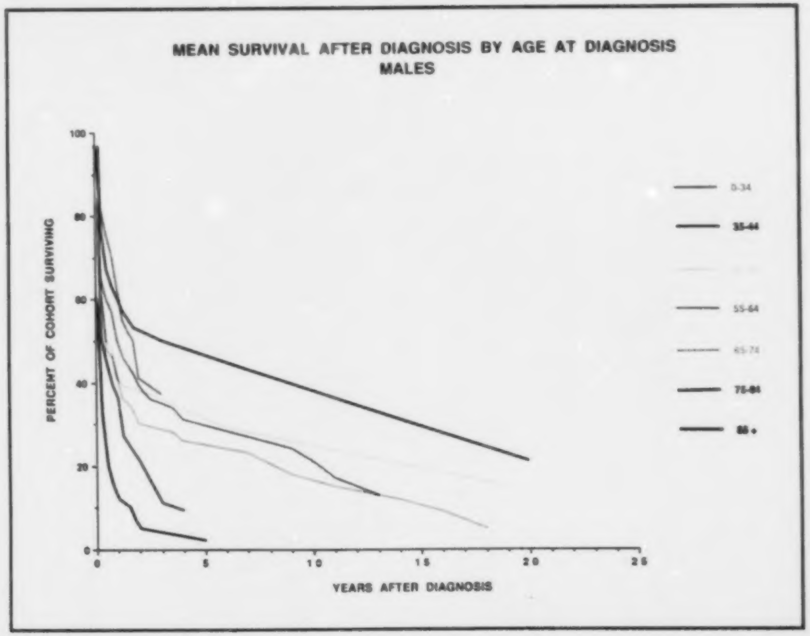
Median survival times were highest at 7.8 years for males aged 35 to 44 years. This group lived on average 21% of the anticipated number of years but for all other age groups of males, the proportion of the anticipated life expectancy that was lived did not exceed 6%. The greatest number of years of life lost was experienced by the youngest males who lived on average only 2 of their expected 57.7 years.

The survival experience of females was better than that of males. Comparing age groups where the median survival period was calculated, females aged 45 to 54 lived 22% of their anticipated life expectancy compared to just 2% for males. Large differences were also recorded in the 55 to 64 age group.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 26 | -- | 63.9 | -- | -- |
| 35-44 | 18 | -- | 41.7 | -- | -- |
| 45-54 | 38 | 7.3 | 32.4 | 25.1 | 22% |
| 55-64 | 58 | 4.7 | 23.7 | 19.0 | 20% |
| 65-74 | 80 | 1.2 | 15.8 | 14.6 | 7% |
| 75-84 | 84 | 0.3 | 9.1 | 8.8 | 3% |
| 85+ | 41 | 0.2 | 6.0 | 5.8 | 3% |
| MALES | | | | | |
| 0-34 | 38 | 2.0 | 57.7 | 55.7 | 3% |
| 35-44 | 30 | 7.8 | 36.6 | 28.8 | 21% |
| 45-54 | 57 | 0.7 | 27.3 | 26.6 | 2% |
| 55-64 | 83 | 1.2 | 19.2 | 18.0 | 6% |
| 65-74 | 99 | 0.7 | 12.3 | 11.6 | 5% |
| 75-84 | 73 | 0.4 | 7.2 | 6.8 | 6% |
| 85+ | 41 | 0.2 | 5.0 | 4.8 | 3% |



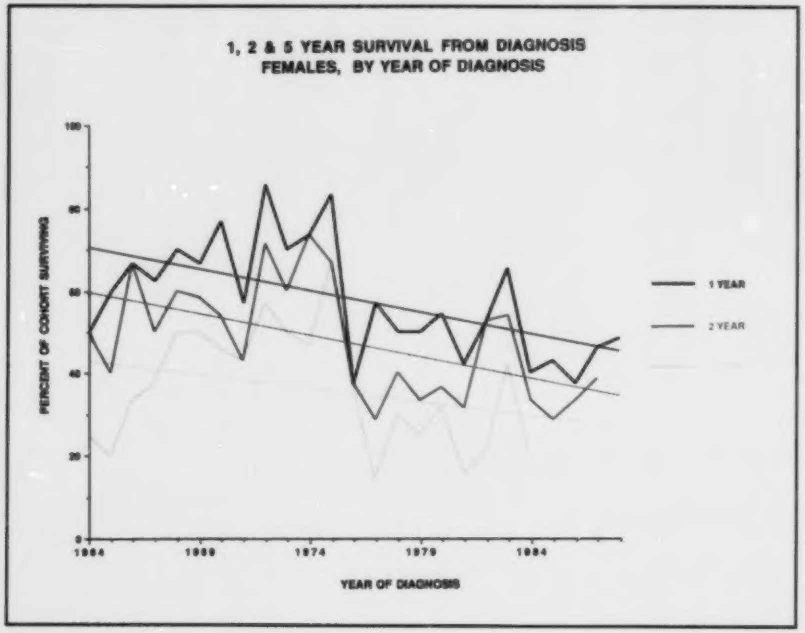


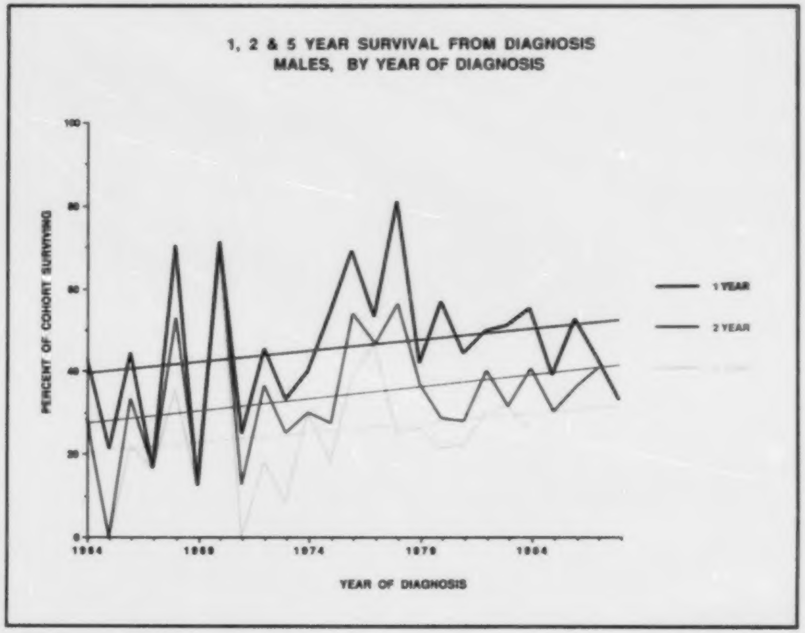
Compared to all other site groups, female one, two, and five year survival rates ranked eighth lowest. Annual variation in the rates was very large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 14 per year. The lowest number of cases in any year was 4.

The slopes of the female trend lines are: one year = -1.051 (↓), two year = -1.049 (↓) and five year = -0.658 (↔). According to the trend lines, one year survival rates began the interval at 70.5% and decreased to 45.3% in 1988. Two year survival rates (trend line) decreased from 59.6% in 1964 to 34.4% in 1988. On average, two year rates were 81% of one year rates. Five year survival rates (trend line) began the interval at 42.9% and decreased to 27.1% in 1988. They averaged 60% of one year survival rates.

For males, the one, two, and five year survival rates ranked eighth lowest. Annual variation in the rates was very large and part of this variation can be explained as a small numbers problem. The average number of males diagnosed with this cancer was 17 per year. In 7 years the number of cases was less than 10.

The slopes of the male trend lines are: one year = 0.534 (↔), two year = 0.575 (↔) and five year = 0.452 (↔). According to the trend lines, one year survival rates began the interval at 39.7% and increased to 52.5% in 1988. Two year survival rates (trend line) increased from 27.4% in 1964 to 41.2% in 1988. On average, two year rates were 74% of one year rates. Five year survival rates (trend line) began the interval at 20.7% and increased to 31.5% in 1988. They averaged 56% of one year survival rates.





# LARYNX

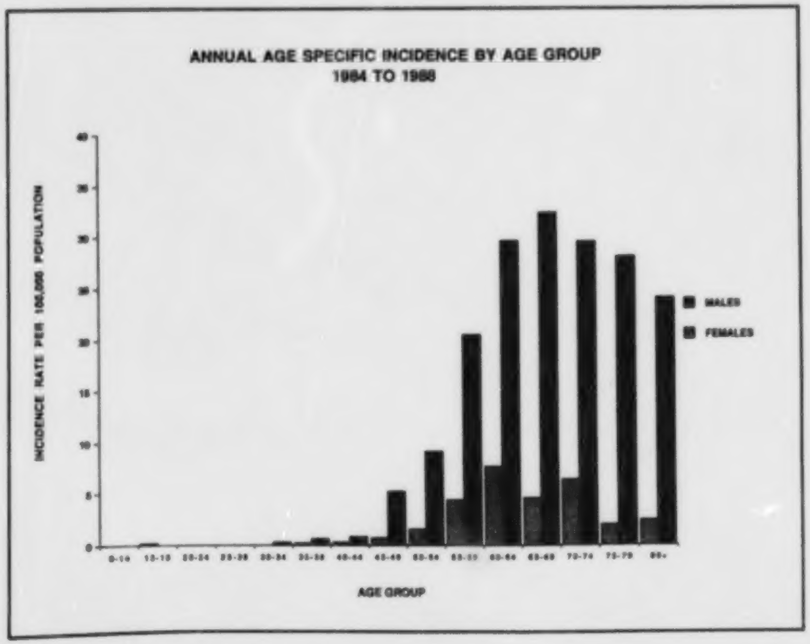
Incidence rates for cancer of the larynx were relatively low in comparison to other cancer sites. The female incidence rate remained below 1.0 per 100,000 for persons under the age of 50 years. The highest rate of 7.7 was experienced amongst females in the 60 to 64 year age group. Male rates were less than 1.0 for all ages under the age of 45 years and a maximum incidence of 32.3 was experienced in the 65 to 69 year age group. Male incidence was 13.4 times greater than female incidence in 75 to 79 year olds.

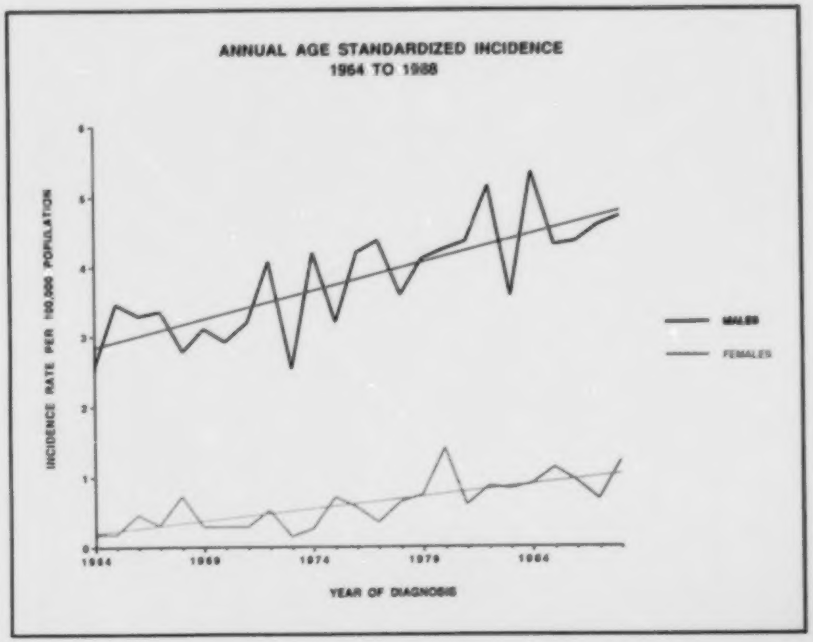
Incidence rates increased for both females and males between 1964 and 1988. In 1970, female rates were lowest when no cases were recorded. The highest incidence of 1.4 occurred in 1980. The trend line has a slope of 0.038 (†) and shows that incidence increased by one every 26 years.

Male incidence was lowest at 2.5 in 1973. The highest rate occurred in 1984 (5.3). The slope of the trend line is 0.079 (†) and represents a 66% increase in incidence over the interval. According to the trend line, incidence rates increased by one case every 12.6 years.

Because the female rate was so low in 1964, the ratio of the male rate to the female rate was 29. By 1988 the ratio decreased to 4.8.

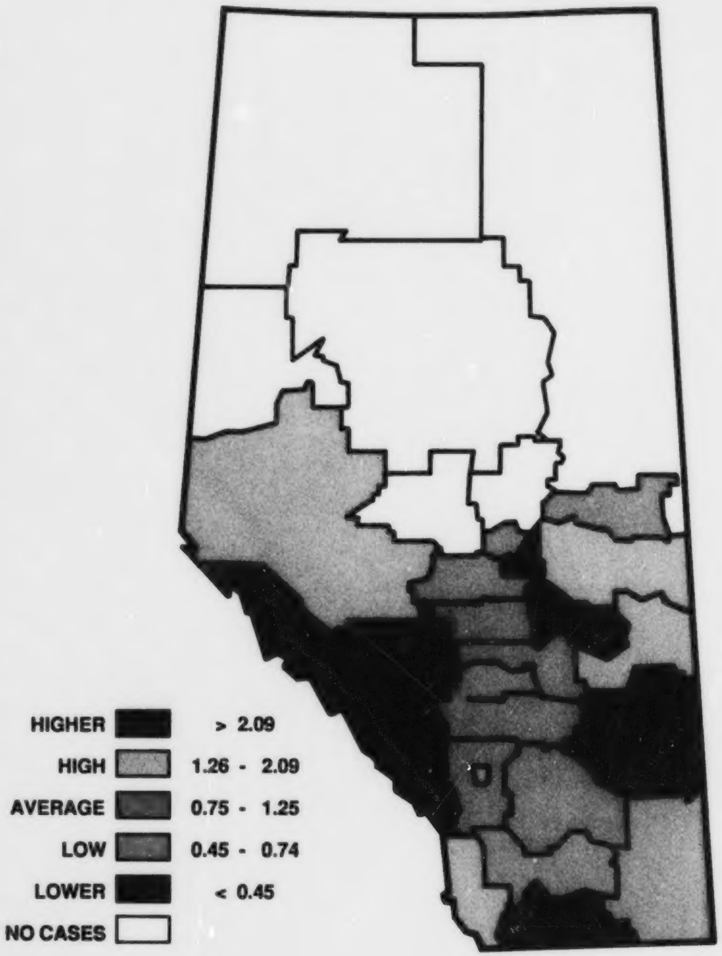
The provincial incidence rates for the mapped data were 1.0 per 100,000 for females and 4.6 for males. On the map of female rates, 5 areas had higher incidence and another 5 areas were high. Lower incidence was observed in 2 areas and 4 areas were low. No cases were recorded in 6 areas. The map of male rates shows no areas with higher incidence and 5 classed as high. Lower incidence was observed in 4 areas and 6 areas were low. Mapped areas 14 and 21 were above average on both maps while mapped areas 13, 18, 24, 25 and 26 were below average for both genders.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1984 TO 1988

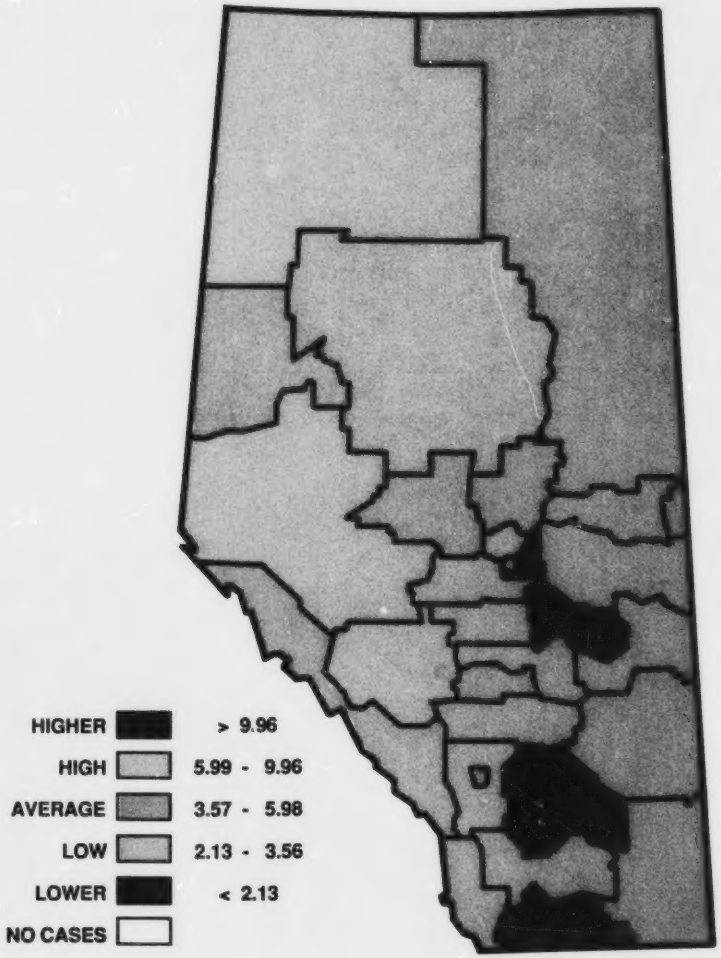

ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

# ICD-9 CODES 161

## FEMALES


HIGHER > 2.09
HIGH 1.26 - 2.09
AVERAGE 0.75 - 1.25
LOW 0.45 - 0.74
LOWER < 0.45
NO CASES

## MALES


HIGHER > 9.96
HIGH 5.99 - 9.96
AVERAGE 3.57 - 5.98
LOW 2.13 - 3.56
LOWER < 2.13
NO CASES

# LARYNX

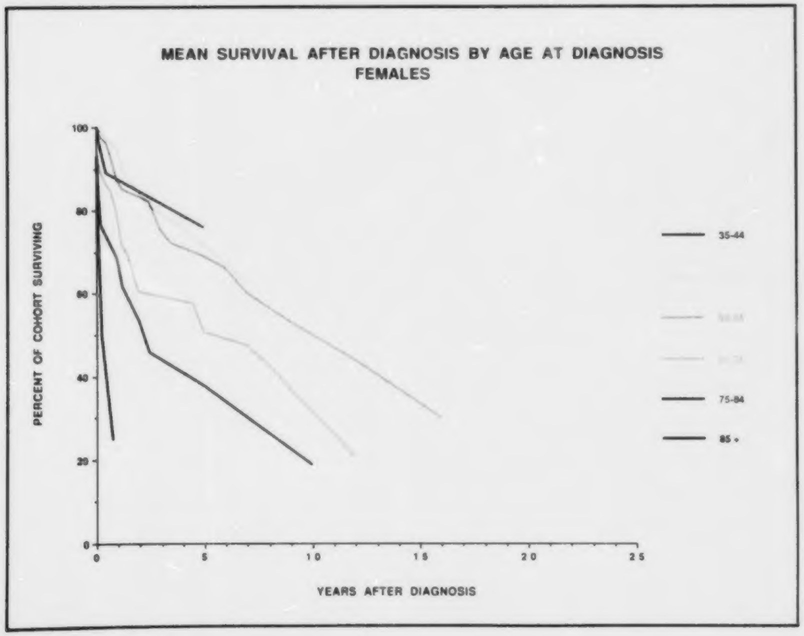
The survival experience of persons diagnosed with cancer of the larynx is shown. Median survival times are tabulated except where more than half the cohort survived beyond the maximum follow-up period. Median survival times ranged from 12.0 years for females aged 55 to 64 to 10 months for the oldest females. Females aged 55 to 64 lived an average of 51% of the total anticipated life expectancy but this proportion dropped to 14% in the oldest females.

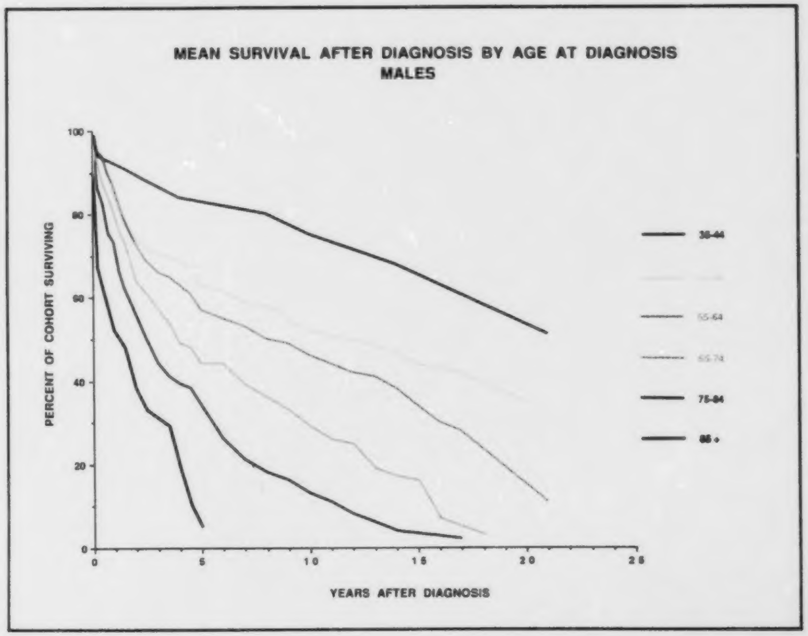
Males aged 45 to 54 experienced a median survival period of 12.4 years and the oldest age group experienced the shortest median survival of 19 months. The median survival time of males aged 45 to 54 was 45% of their anticipated life expectancy. The oldest males lived on average 32% of their anticipated life expectancy.

Far fewer females than males had cancer of the larynx and this influences the accuracy of estimates of median survival times for females. Females in the younger age groups experienced better survival than did males while in the older age groups, males lived longer portions of their anticipated life expectancy.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 5 | -- | 63.9 | -- | -- |
| 35-44 | 9 | -- | 41.7 | -- | -- |
| 45-54 | 22 | -- | 32.4 | -- | -- |
| 55-64 | 53 | 12.0 | 23.7 | 11.7 | 51% |
| 65-74 | 40 | 7.6 | 15.8 | 8.2 | 48% |
| 75-84 | 13 | 2.8 | 9.1 | 6.3 | 31% |
| 85+ | 4 | 0.8 | 6.0 | 5.2 | 14% |
| MALES | | | | | |
| 0-34 | 2 | -- | 57.7 | -- | -- |
| 35-44 | 33 | -- | 36.6 | -- | -- |
| 45-54 | 189 | 12.4 | 27.3 | 14.9 | 45% |
| 55-64 | 317 | 8.5 | 19.2 | 10.7 | 44% |
| 65-74 | 260 | 4.4 | 12.3 | 7.9 | 36% |
| 75-84 | 115 | 3.0 | 7.2 | 4.2 | 42% |
| 85+ | 21 | 1.6 | 5.0 | 3.4 | 32% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES

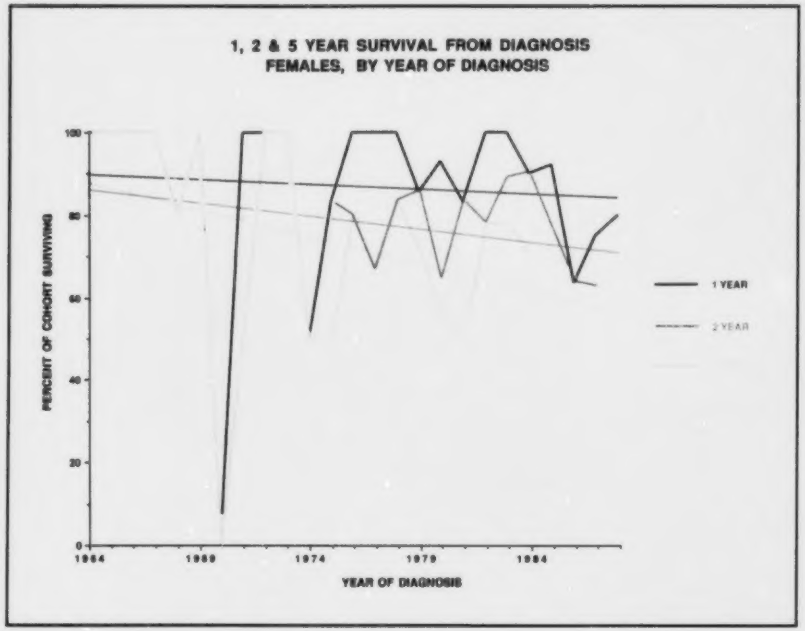

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

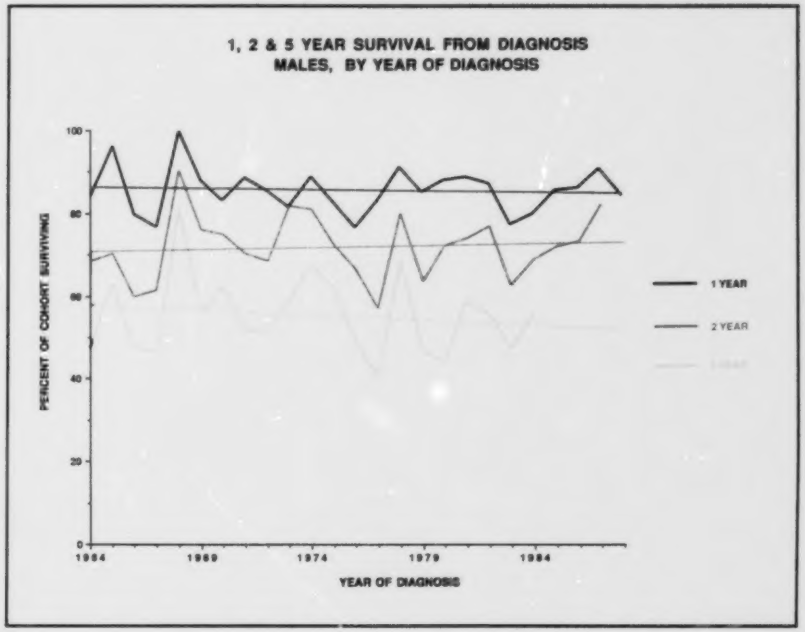
Compared to all other site groups, female one, two, and five year survival rates ranked eighth highest. Annual variation in the rates was very large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 6 per year and there were no cases in one year.

The slopes of the female trend lines are: one year = -0.673 (↔), two year = -1.066 (↓) and five year = -1.762 (↓). According to the trend lines, one year survival rates began the interval at 98.9% and decreased to 82.8% in 1988. Two year survival rates (trend line) decreased from 86.0% in 1964 to 70.5% in 1988. On average, two year rates were 86% of one year rates. Five year survival rates (trend line) began the interval at 87.7% and decreased to 56.0% in 1988. They averaged 80% of one year survival rates.

For males, the survival rates ranked third highest for one year survival and seventh highest for both two year and five year survival. Annual variation in the rates was relatively large and part of this variation can be explained as a small numbers problem. The average number of males diagnosed with this cancer was 38 per year. The lowest number of cases in any year was 19.

The slopes of the male trend lines are: one year = -0.063 (↔), two year = 0.085 (↔) and five year = -0.247 (↔). According to the trend lines, one year survival rates began the interval at 86.6% and decreased slightly to 85.1% in 1988. Two year survival rates (trend line) increased slightly from 70.9% in 1964 to 72.9% in 1988. On average, two year rates were 82% of one year rates. Five year survival rates (trend line) began the interval at 57.8% and decreased to 51.9% in 1988. They averaged 63% of one year survival rates.


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

# TRACHEA, BRONCHUS, LUNG

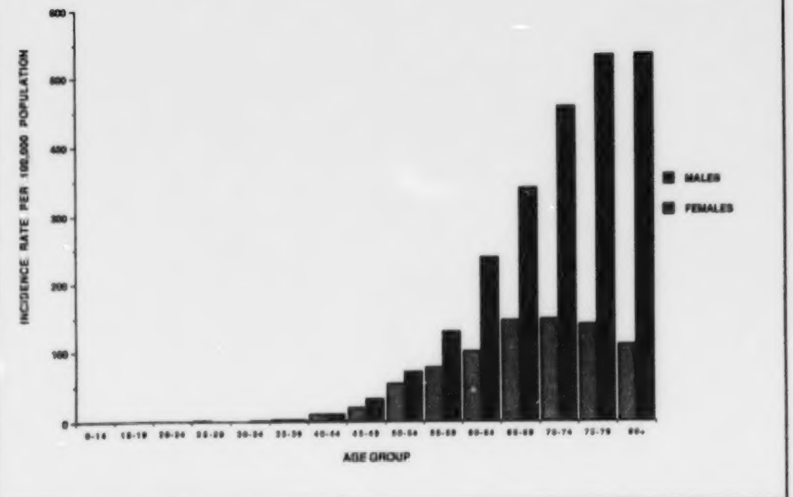
Cancer of the trachea, bronchus and lung ranked fifth most common for females and third most common for males. While some cases did occur in the younger age groups, incidence rates did not exceed 1.0 per 100,000 in age categories below 35 years. In all ages above 45 male rates exceeded female rates dramatically. In the oldest age category, male incidence was highest at 532.5, which was 4.7 times the corresponding female rate of 113.2. Female incidence reached a maximum of 149.1 in 70 to 74 year olds.

Female incidence rates demonstrated a strong increase between 1964 and 1988. Female rates began the period at 2.7 and increased to reach a maximum value of 24.3 in 1988. The trend line has a slope of 0.904 (↑) and it suggests that incidence increased by one case per 100,000 every 1.1 years.

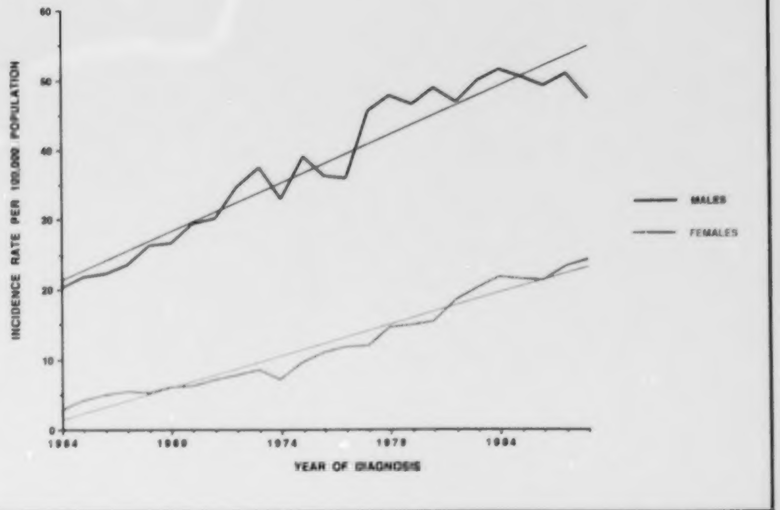
Male incidence rates increased during most of the first 15 years of the interval. Since the early part of the 1980s, incidence reached a plateau and showed a tendency to decline. Male rates were lowest at 20.3 in 1964 and a maximum value of 51.5 was recorded in 1984. The slope of the trend line is 1.394 (↑) and demonstrates an increase of 157% over the interval. According to the trend line, incidence increased by one case per 100,000 every 0.7 years but this masks the changed pattern displayed in the most recent years. A trend line calculated from 1983 onwards, but not displayed, has a slope of -0.466 (↔). The ratios of male incidence to female incidence (taken from the 1964 to 1988 trend lines) were 16.4 in 1964 and only 2.4 in 1988.

The provincial incidence rates for the mapped data were 23.4 per 100,000 for females and 50.2 for males. On the map of female rates, 4 areas were high. Lower incidence was observed in no areas and 6 areas were low. The map for males shows only 2 areas to be low and all others are classed as average. Area 2 was below average on both maps.

ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1984 TO 1988

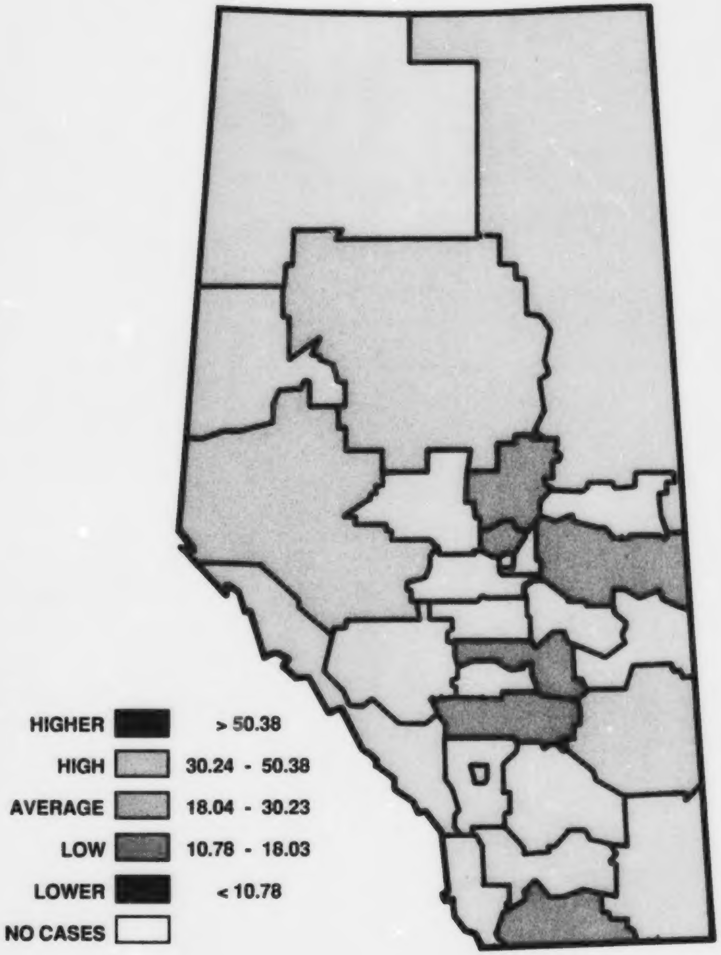


ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

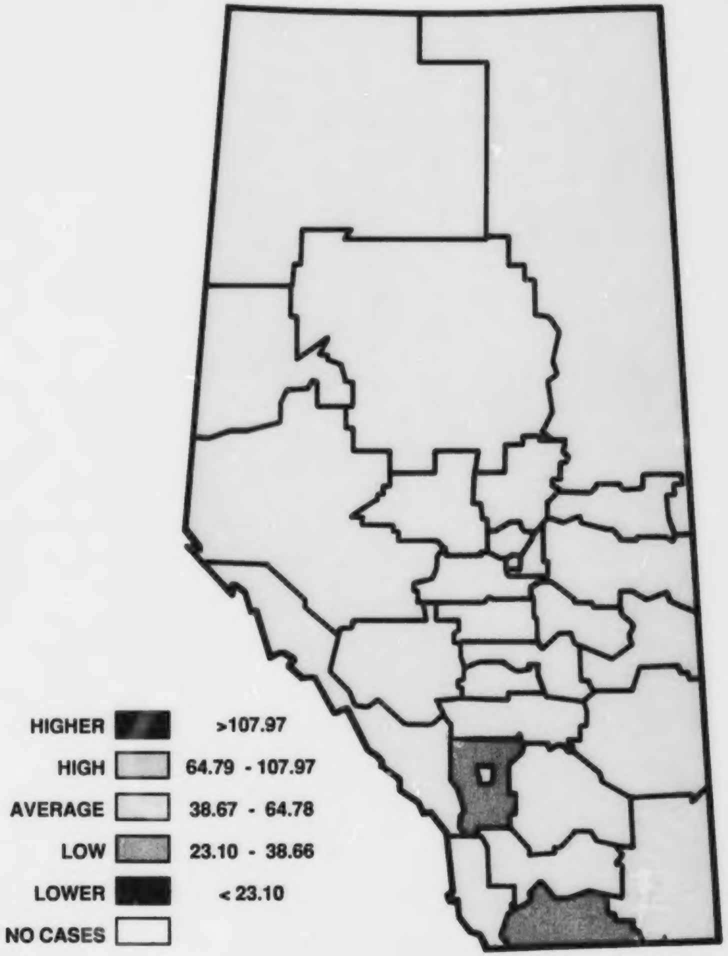


# ICD-9 CODES 162

## FEMALES


HIGHER ■ > 50.38
HIGH ▨ 30.24 - 50.38
AVERAGE ▨ 18.04 - 30.23
LOW ▨ 10.78 - 18.03
LOWER ■ < 10.78
NO CASES ☐

## MALES


HIGHER ■ >107.97
HIGH ▨ 64.79 - 107.97
AVERAGE ☐ 38.67 - 64.78
LOW ▨ 23.10 - 38.66
LOWER ■ < 23.10
NO CASES ☐

# TRACHEA, BRONCHUS, LUNG

The survival experience of persons diagnosed with cancer of the trachea, bronchus and lung is shown and median survival times are tabulated. The survival curves are characterized by very rapid decline in the early months followed by a relatively long survival time for a small percentage of cases.

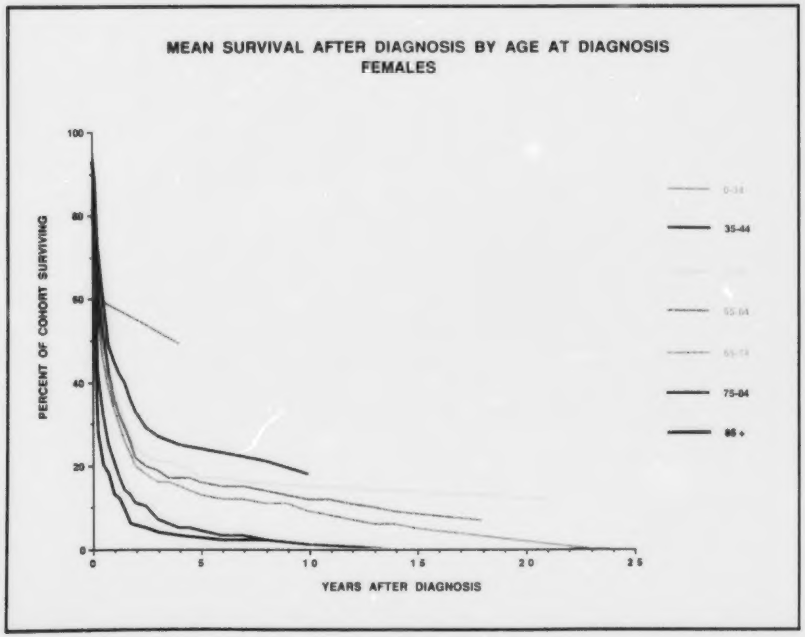
Median survival times were one year or less for all age categories of females except the youngest group who experienced a median survival time of 50 months. This represented just 7% of their anticipated life expectancy and all other age groups lived smaller proportions of their anticipated life expectancy.

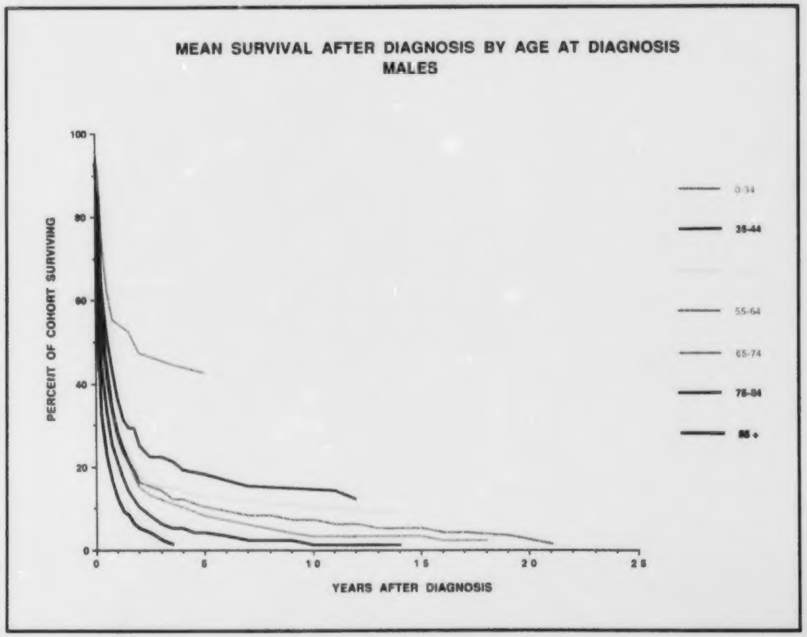
As with females, males in the youngest age group were the only ones to experience a median survival time longer than one year. Males in the oldest age group experienced the shortest median survival period of just 2 months. In all age categories of males, the median survival period represented 5% or less of the anticipated life expectancy.

The survival experiences of females and males were similar for cancer of the trachea, bronchus and lung. The short median survival times resulted in almost equal proportions of years of anticipated life expectancy survived for females and males of the same age.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 29 | 4.2 | 63.9 | 59.7 | 7% |
| 35-44 | 149 | 1.0 | 41.7 | 40.7 | 2% |
| 45-54 | 544 | 0.8 | 32.4 | 31.6 | 2% |
| 55-64 | 924 | 0.8 | 23.7 | 22.9 | 3% |
| 65-74 | 943 | 0.7 | 15.8 | 15.1 | 4% |
| 75-84 | 464 | 0.3 | 9.1 | 8.8 | 4% |
| 85+ | 132 | 0.2 | 6.0 | 5.8 | 3% |
| MALES | | | | | |
| 0-34 | 42 | 2.4 | 57.7 | 55.3 | 4% |
| 35-44 | 226 | 0.8 | 36.6 | 35.8 | 2% |
| 45-54 | 1028 | 0.6 | 27.3 | 26.7 | 2% |
| 55-64 | 2641 | 0.6 | 19.2 | 18.6 | 3% |
| 65-74 | 3354 | 0.5 | 12.3 | 11.8 | 4% |
| 75-84 | 1948 | 0.3 | 7.2 | 6.9 | 5% |
| 85+ | 358 | 0.2 | 5.0 | 4.8 | 3% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

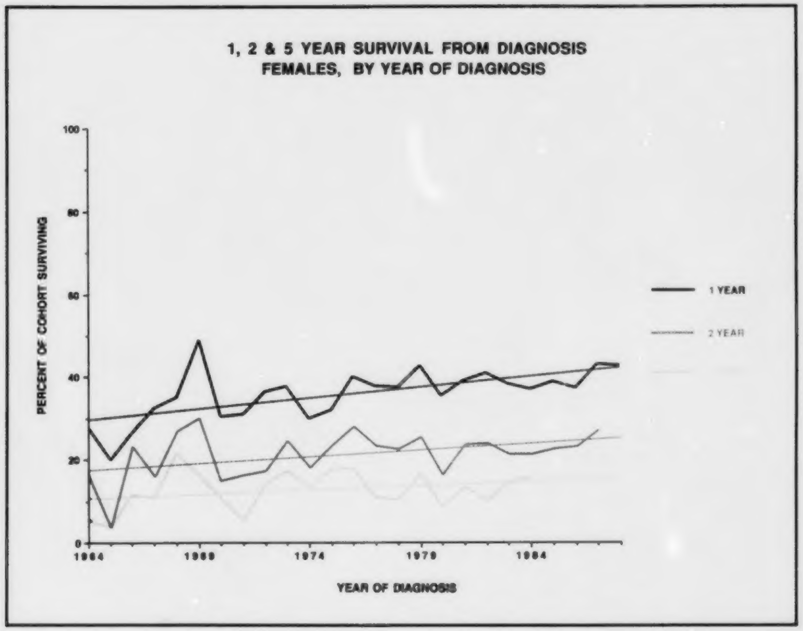
# ICD-9 CODES 162

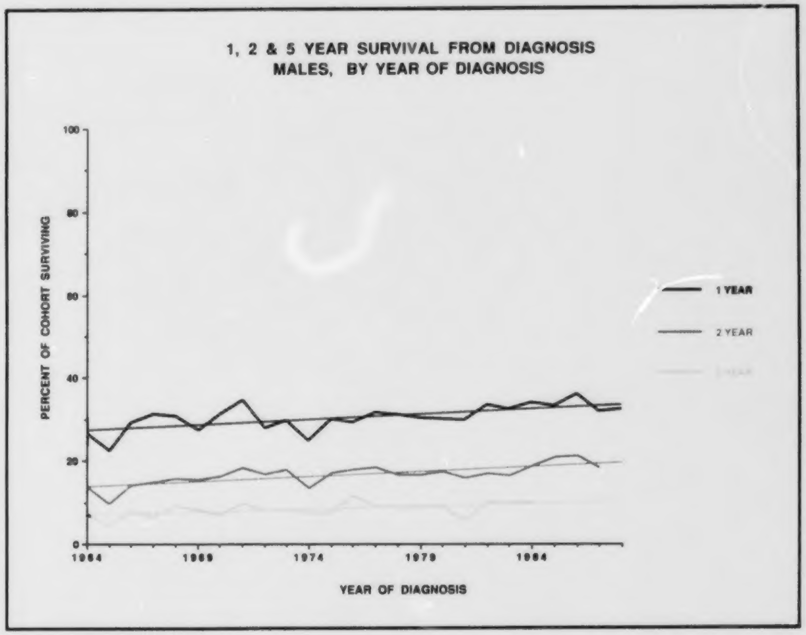
Compared to all other site groups, female one, two, and five year survival rates ranked fifth lowest. Annual variation in the rates was relatively small and a large number of cases each year contributed to this. The average number of females diagnosed with this cancer was 128 per year and the annual number of cases was never lower than 17.

The slopes of the female trend lines are: one year = 0.516 (↑), two year = 0.307 (↔) and five year = 0.195 (↔). According to the trend lines, one year survival rates began the interval at 29.7% and increased to 42.1% in 1988. Two year survival rates (trend line) increased from 17.8% in 1964 to 25.2% in 1988. On average, two year rates were 60% of one year rates. Five year survival rates (trend line) began the interval at 10.8% and increased to 15.5% in 1988. They averaged 36% of one year survival rates.

For males, the one, two and five year survival rates ranked fifth lowest. Annual variation in the rates was very small and a large number of cases each year contributed to this. The average number of males diagnosed with this cancer was 383 per year and the annual number of cases was never lower than 152.

The slopes of the male trend lines are: one year = 0.251 (↑), two year = 0.232 (↑) and five year = 0.138 (↑). According to the trend lines, one year survival rates began the interval at 27.7% and increased to 33.7% in 1988. Two year survival rates (trend line) increased from 14.0% in 1964 to 19.6% in 1988. On average, two year rates were 56% of one year rates. Five year survival rates (trend line) began the interval at 7.0% and increased slightly to 10.3% in 1988. They averaged 28% of one year survival rates.


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

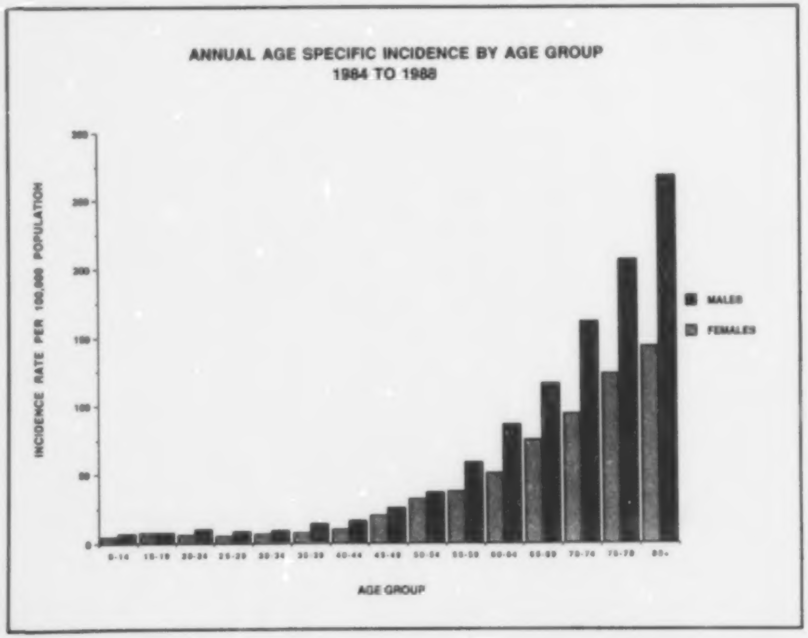
# HEMATOPOIETIC CANCERS

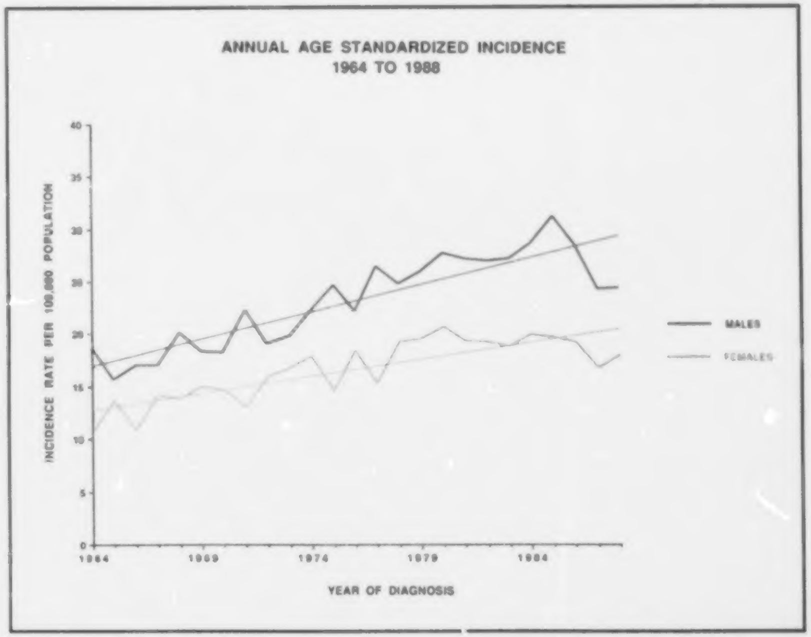
In terms of incidence, hematopoietic cancers (leukaemia, Hodgkin's disease and non-Hodgkin's lymphomas combined) were very important, being the sixth most common cancer for females and fifth for males. Hematopoietic cancers ranked as the first or second most common cancer in females under 25 years and in males under the age of 45. Male rates were always higher than female rates and for many age categories the ratio of male rates to female rates exceeded 1.5. Female incidence began at 5.0 per 100,000 in the youngest age category and increased across all ages to reach a maximum of 144.6. The corresponding rates for males were 7.2 and 267.4.

Incidence rates increased for both females and males between 1964 and 1988. Female rates were less than male rates in each year during the period. In 1964 female incidence was 10.6 and the highest rate of 20.7 was recorded in 1980. The trend line has a slope of 0.324 (↑) and demonstrates an increase of 61% over the 25 years. The trend indicates that incidence increased by one case per 100,000 every 3.1 years.

Male incidence was lowest at 15.6 in 1965. The highest value of 31.1 was recorded in 1985. The trend line has a slope of 0.515 (↑) and demonstrates an increase of 73% during the interval. According to the trend line, incidence increased by one case per 100,000 every 1.9 years.

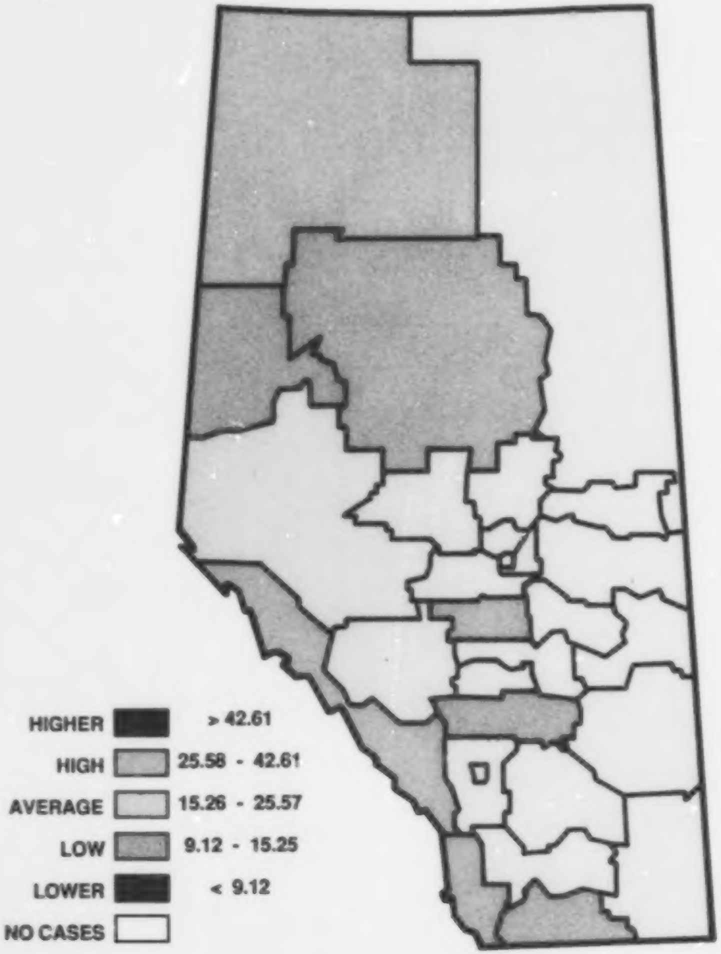
The provincial incidence rates for the mapped data were 19.8 per 100,000 for females and 27.5 for males. On the map of female rates, no areas had higher incidence and 3 areas were high. Lower incidence was observed in no areas and 5 areas were low. The map of male rates shows no areas with higher incidence and 1 area classed as high. Lower incidence was observed in no areas and 3 areas were low. Mapped area 2 was below average on both maps.



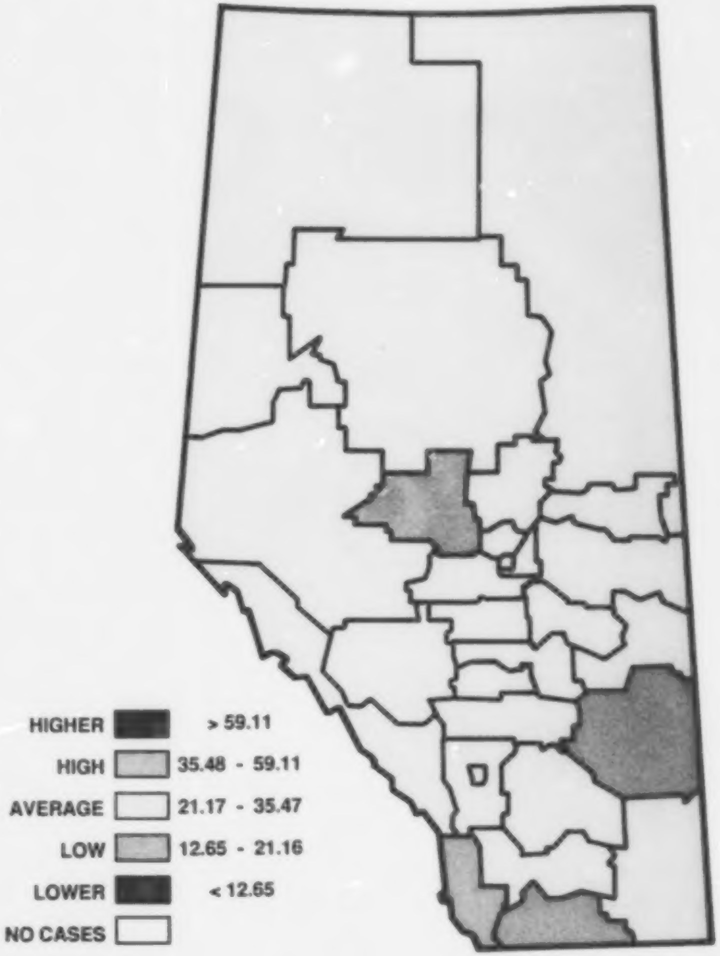


# ICD-9 CODES 200 TO 208

FEMALES


HIGHER ■ > 42.61
HIGH ▨ 25.58 - 42.61
AVERAGE ▨ 15.26 - 25.57
LOW ▨ 9.12 - 15.25
LOWER ■ < 9.12
NO CASES ☐

MALES


HIGHER ■ > 59.11
HIGH ▨ 35.48 - 59.11
AVERAGE ☐ 21.17 - 35.47
LOW ▨ 12.65 - 21.16
LOWER ■ < 12.65
NO CASES ☐

# HEMATOPOIETIC CANCERS

The survival experience of persons diagnosed with haematopoietic cancers is shown and median survival times are tabulated. The survival curves are well separated indicating the influence of age and its inverse relationship with survival.

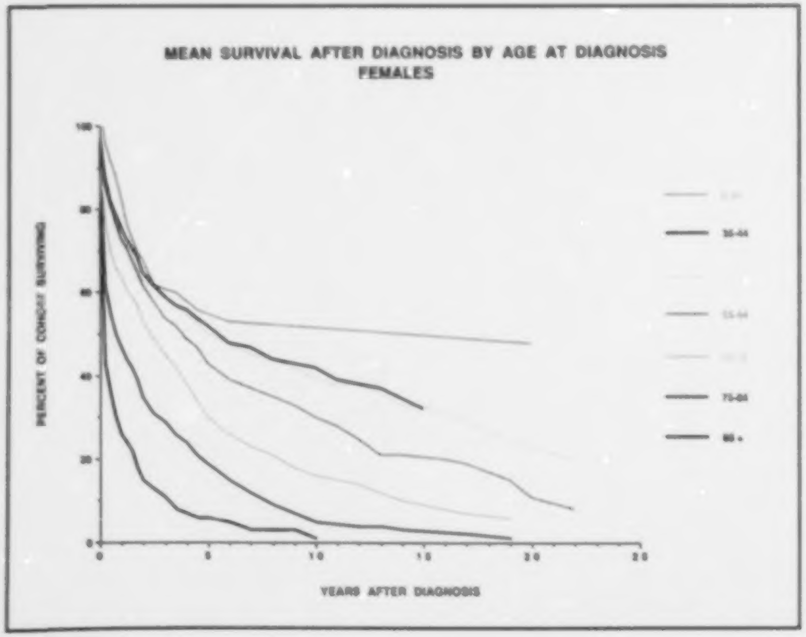
Median survival for females was greatest in the youngest age group at 13.8 years. Median survival for the oldest females was just 5 months. On average the youngest females lost 50.2 years of life to this disease. Their median survival time was just 22% of the anticipated life expectancy for this age group.

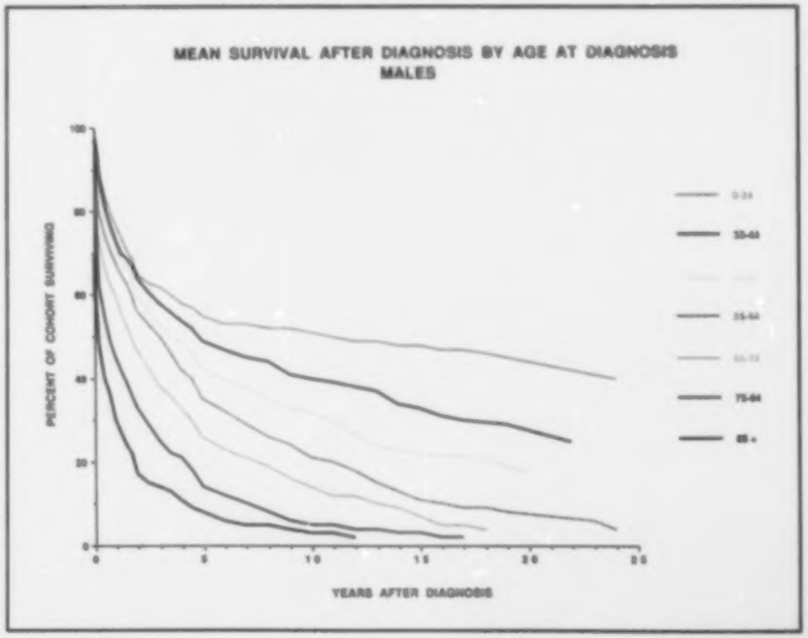
Median survival times for males were slightly less than those for females, ranging from 12.6 years in the youngest age group to 5 months in the oldest. The youngest males lived, on average, 22% of their anticipated life expectancy. This proportion was lowest at 8% in the oldest males.

Haematopoietic cancers had similar impact on the survival of females and males. The percentages of the anticipated life expectancy survived were very similar in females and males of the same age group.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 823 | 13.8 | 63.9 | 50.1 | 22% |
| 35-44 | 257 | 6.3 | 41.7 | 35.4 | 15% |
| 45-54 | 445 | 5.9 | 32.4 | 26.5 | 18% |
| 55-64 | 713 | 4.3 | 23.7 | 19.4 | 18% |
| 65-74 | 926 | 2.9 | 15.8 | 12.9 | 18% |
| 75-84 | 627 | 1.0 | 9.1 | 8.1 | 11% |
| 85+ | 236 | 0.4 | 6.0 | 5.6 | 7% |
| MALES | | | | | |
| 0-34 | 1163 | 12.6 | 57.7 | 45.1 | 22% |
| 35-44 | 442 | 5.7 | 36.6 | 30.9 | 15% |
| 45-54 | 653 | 4.0 | 27.3 | 23.3 | 15% |
| 55-64 | 1033 | 3.4 | 19.2 | 15.8 | 18% |
| 65-74 | 1262 | 2.1 | 12.3 | 10.2 | 17% |
| 75-84 | 921 | 0.9 | 7.2 | 6.3 | 13% |
| 85+ | 255 | 0.4 | 5.0 | 4.6 | 8% |



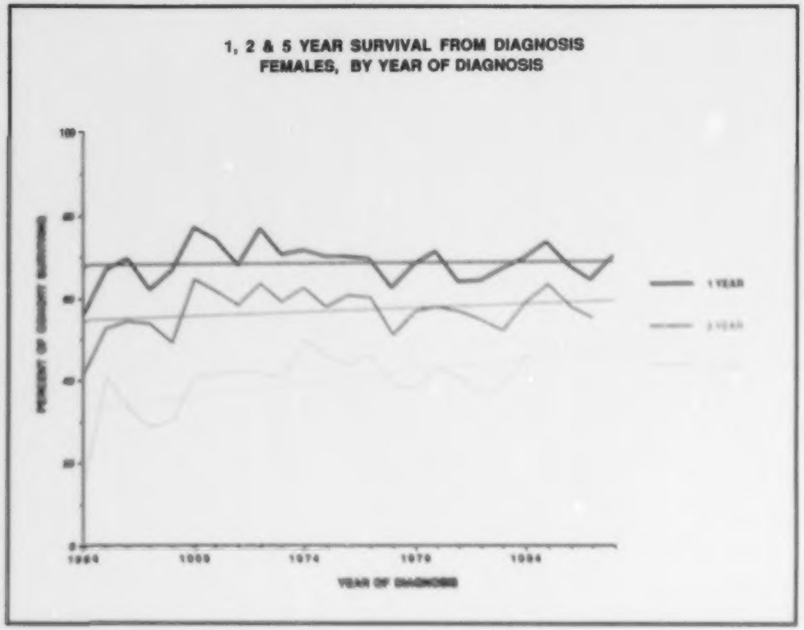


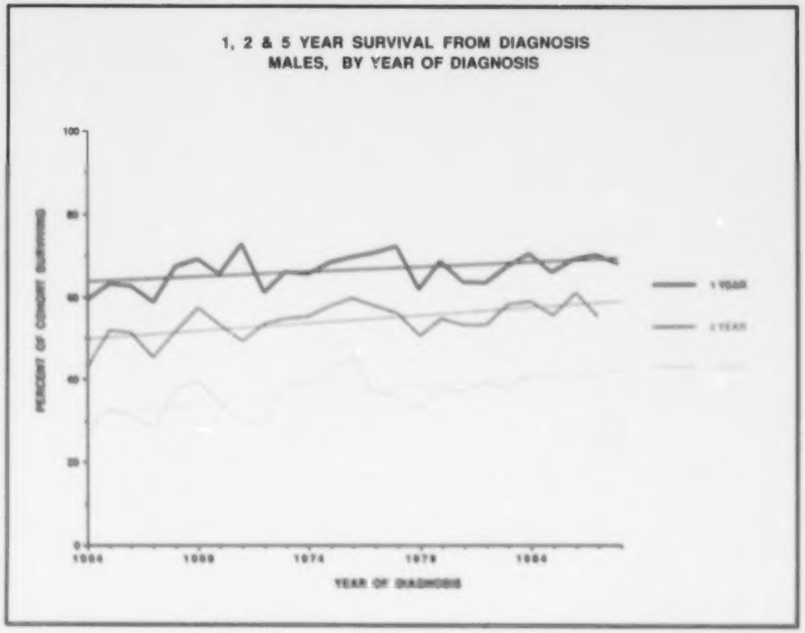
Compared to all other site groups, female one, two and five year survival rates ranked in the middle of the range. Annual variation in the rates was relatively large despite a very large number of cases each year. The average number of females diagnosed with this cancer was 161 per year and the annual number of cases was never lower than 67.

The slopes of the female trend lines are: one year = 0.048 (↔), two year = 0.193 (↔) and five year = 0.613 (↑). According to the trend lines, one year survival rates began the interval at 67.9% and increased slightly to 69.1% in 1988. Two year survival rates (trend line) increased from 54.4% in 1964 to 59.0% in 1988. On average, two year rates were 82% of one year rates. Five year survival rates (trend line) began the interval at 32.9% and increased to 47.6% in 1988. They averaged 57% of one year survival rates.

For males, the one, two, and five year survival rates ranked in the middle of the range. Annual variation in the rates was relatively small and a large number of cases each year contributed to this. The average number of males diagnosed with this cancer was 229 per year and the annual number of cases was never lower than 114.

The slopes of the male trend lines are: one year = 0.236 (↑), two year = 0.380 (↑) and five year = 0.447 (↑). According to the trend lines, one year survival rates began the interval at 63.4% and increased to 69.1% in 1988. Two year survival rates (trend line) increased from 49.7% in 1964 to 58.8% in 1988. On average, two year rates were 80% of one year rates. Five year survival rates (trend line) began the interval at 31.4% and increased to 42.1% in 1988. They averaged 56% of one year survival rates.


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

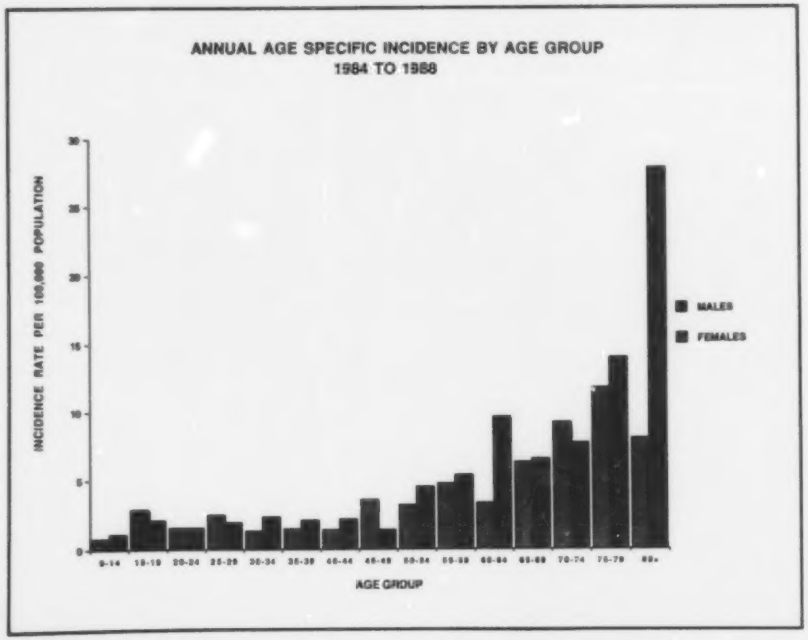
# BONE, CONNECTIVE TISSUE

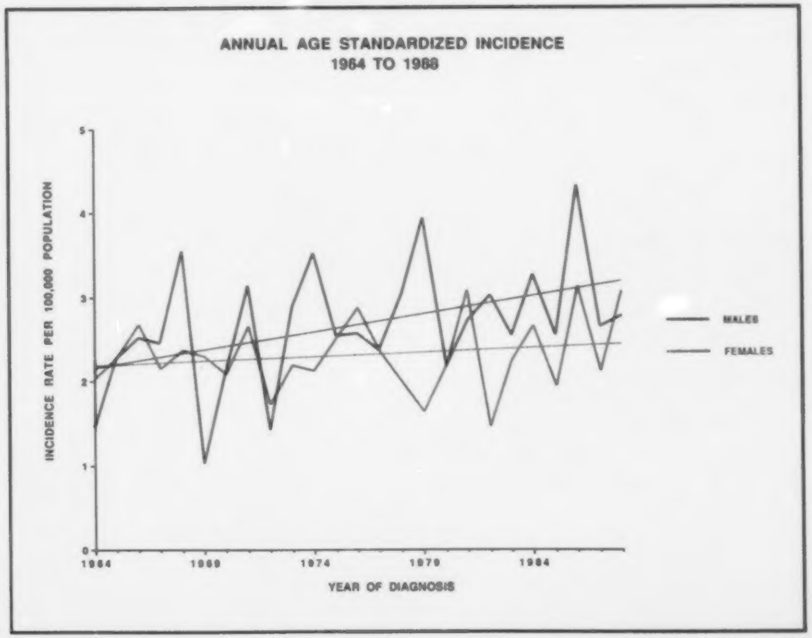
Except in the younger age groups, cancers of the bone and connective tissues ranked low in comparison to other cancer sites. In 0 to 14 year olds, incidence was 0.8 per 100,000 for females and 1.1 for males. The highest rates for females were experienced by the 75 to 79 age group (11.9) and for males the highest rate of 28.0 was experienced by those older than 80 years. In ten of the 15 age groups the male rate exceeded the female rate. Rarely did the two rates differ greatly but, in the oldest age group, the male rate was 3.5 times the female rate.

Both female and male incidence rates demonstrated much variation between 1964 and 1988 due in part to small numbers of cases. Female incidence was lowest at 1.4 in 1982 and the highest rate of 3.1 was recorded in 1981, 1986 and 1988. The trend line for females has a slope of 0.009 (↔) and it indicates an increase in incidence of 10% over the 25 years.

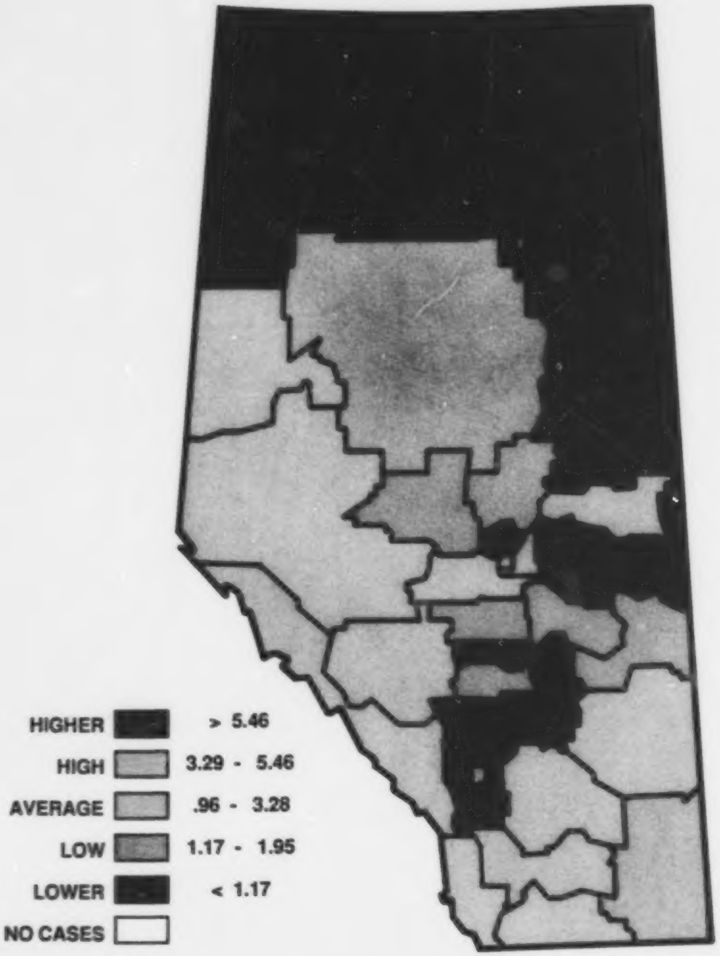
Male incidence was lowest in 1969 when the rate was 1.0. The highest value of 4.3 occurred in 1986. The trend line has a slope of 0.042 (↑) and indicates a 46% increase in incidence over the period. According to the trend line, incidence increased by one case per 100,000 in 23.9 years.

The provincial incidence rates for the mapped data were 2.5 per 100,000 for females and 2.9 for males. On the map of female rates, 1 area had higher incidence and 6 areas were high. Lower incidence was observed in 6 areas and 7 areas were low. The map of male rates shows 1 area with higher incidence and 7 classed as high. Lower incidence was observed in 3 areas and 9 areas were low. No cases were recorded in 1 area. Mapped areas 2 and 7 were above average on both maps while mapped areas 1, 8, 10, 13, 15, 17 and 25 were below average on both maps.

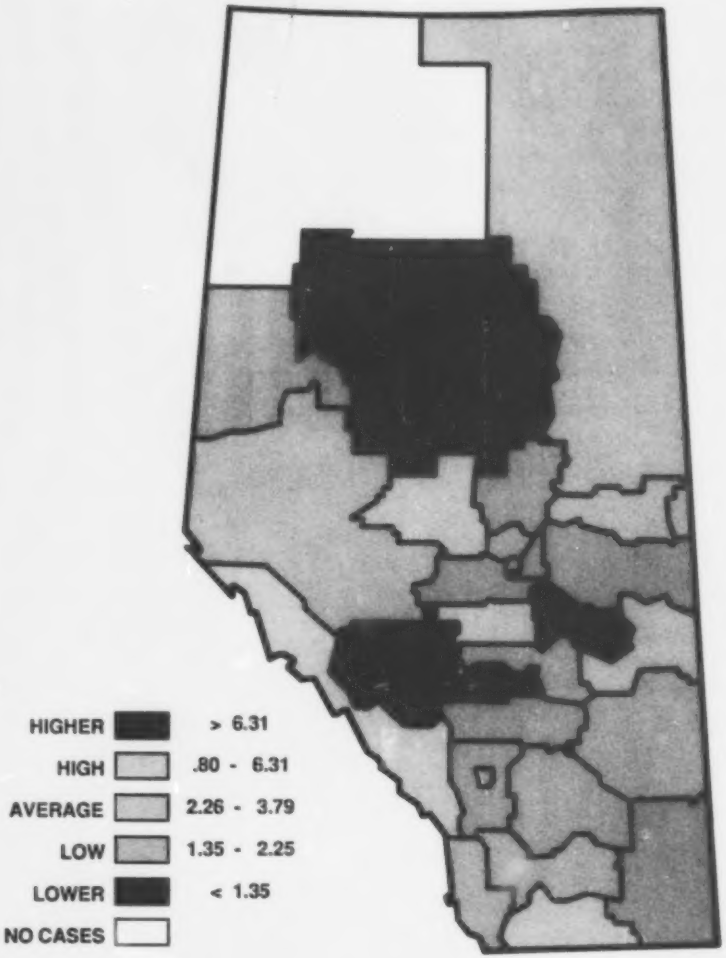

ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1964 TO 1988


ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

FEMALES


HIGHER > 5.46
HIGH 3.29 - 5.46
AVERAGE .96 - 3.28
LOW 1.17 - 1.95
LOWER < 1.17
NO CASES

MALES


HIGHER > 6.31
HIGH .80 - 6.31
AVERAGE 2.26 - 3.79
LOW 1.35 - 2.25
LOWER < 1.35
NO CASES

# BONE, CONNECTIVE TISSUE

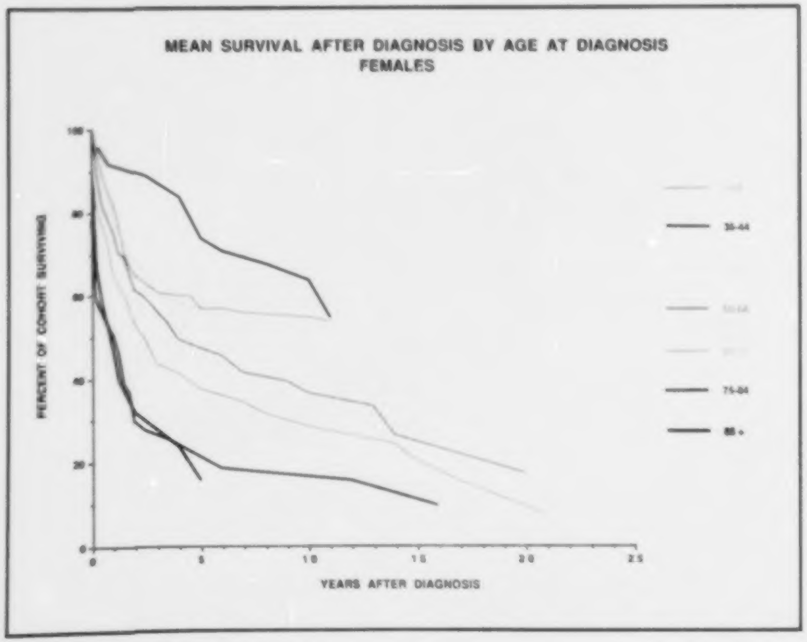
The survival experience of persons diagnosed with cancer of the bone and connective tissue is shown. Median survival times are tabulated for all age groups except those where more than half the sample survived beyond the end of the follow-up period.

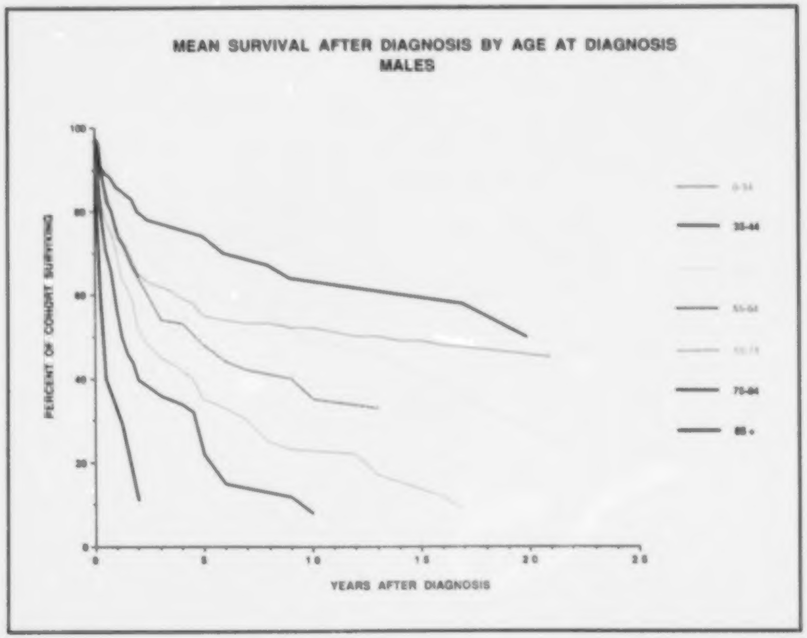
Females of the oldest two age groups experienced very similar survival. As shown in the figure, it was not the youngest group that had the best survival, but rather females aged 35 to 44. Median survival for females aged 55 years to 64 was 5.1 years and this was 21% of their anticipated life expectancy. All other age groups lived on average 16% or 17% of their anticipated life expectancy.

As with females, the youngest males did not experience the best survival. Differences between age categories were distinct. Median survival for males aged 35 to 44 extended beyond 25 years and was 20.5 years for males aged 0 to 34. The oldest males experienced a median survival time of 7 months. Males up to the age of 64 lived on average at least 30% of their anticipated life expectancy. The lowest proportion of 12% was experienced by the oldest males.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 223 | -- | 63.9 | -- | -- |
| 35-44 | 48 | -- | 41.7 | -- | -- |
| 45-54 | 67 | -- | 32.4 | -- | -- |
| 55-64 | 66 | 5.1 | 23.7 | 18.6 | 21% |
| 65-74 | 65 | 2.7 | 15.8 | 13.1 | 17% |
| 75-84 | 50 | 1.4 | 9.1 | 7.7 | 16% |
| 85+ | 15 | 1.0 | 6.0 | 5.0 | 17% |
| MALES | | | | | |
| 0-34 | 229 | 20.5 | 57.7 | 37.2 | 36% |
| 35-44 | 66 | -- | 36.6 | -- | -- |
| 45-54 | 68 | 10.5 | 27.3 | 16.8 | 38% |
| 55-64 | 86 | 5.8 | 19.2 | 13.4 | 30% |
| 65-74 | 97 | 2.6 | 12.3 | 9.7 | 21% |
| 75-84 | 80 | 1.6 | 7.2 | 5.6 | 22% |
| 85+ | 20 | 0.6 | 5.0 | 4.4 | 12% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

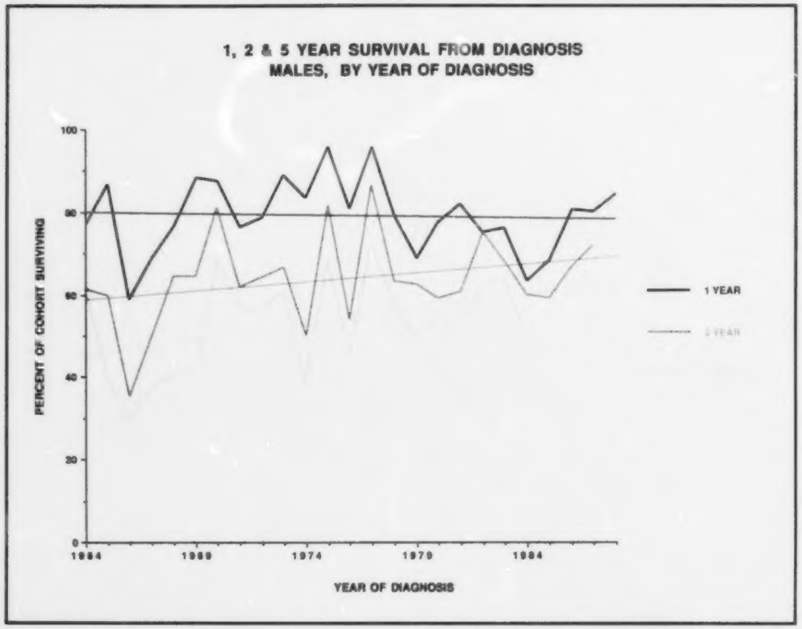
# ICD-9 CODES 170, 171

Compared to all other site groups, female one, two, and five year survival rates ranked in the middle of the range. Annual variation in the rates was very large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 21 per year. The lowest number of cases in any year was 13.

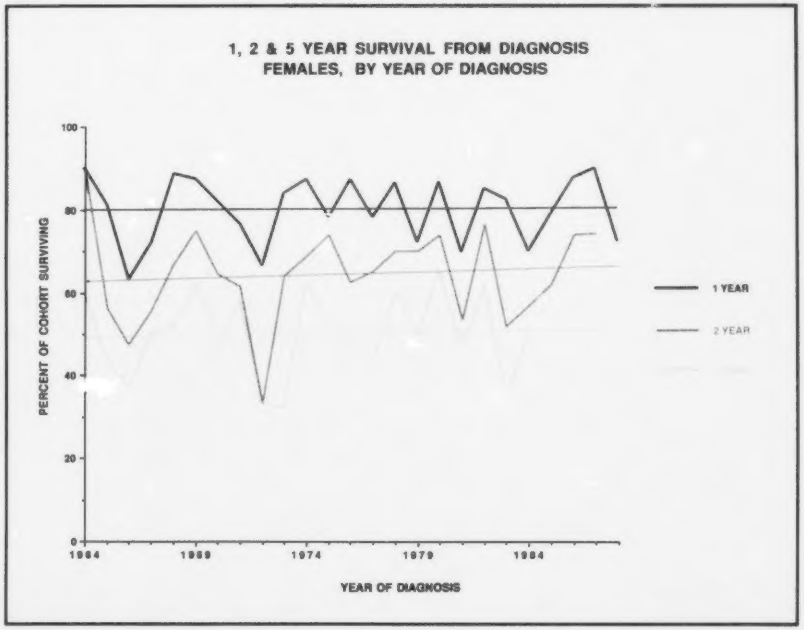
The slopes of the female trend lines are: one year = -0.066 (↔), two year = 0.428 (↔) and five year = 0.748 (↔). According to the trend lines, one year survival rates began the interval at 79.8% and decreased slightly to 78.3% in 1988. Two year survival rates (trend line) increased from 58.8% in 1964 to 69.0% in 1988. On average, two year rates were 80% of one year rates. Five year survival rates (trend line) began the interval at 45.4% and increased to 63.4% in 1988. They averaged 67% of one year survival rates.

For males, the one, two, and five year survival rates ranked eighth highest. Annual variation in the rates was very large and part of this variation can be explained as a small numbers problem. The average number of males diagnosed with this cancer was 26 per year. In 2 years the number of cases was less than 10.

The slopes of the male trend lines are: one year = 0.039 (↔), two year = 0.154 (↔) and five year = 0.101 (↔). According to the trend lines, one year survival rates began the interval at 79.9% and increased slightly to 80.8% in 1988. Two year survival rates (trend line) increased from 62.7% in 1964 to 66.4% in 1988. On average, two year rates were 79% of one year rates. Five year survival rates (trend line) began the interval at 48.9% and increased slightly to 51.3% in 1988. They averaged 61% of one year survival rates.



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS

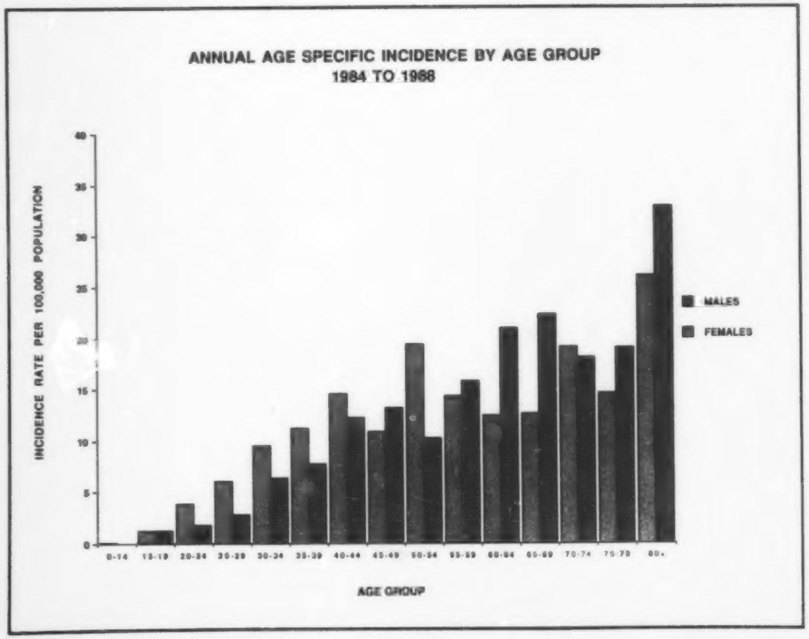
# MELANOMA OF SKIN

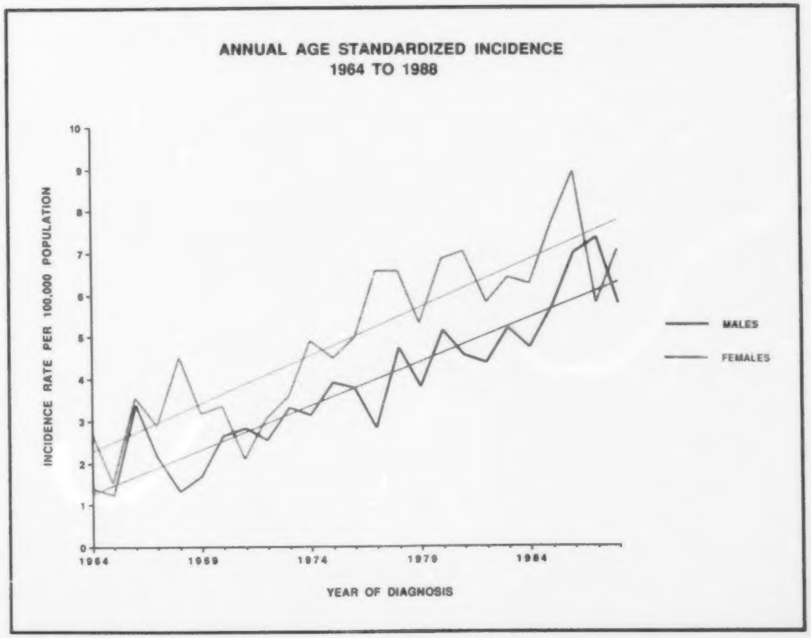
Compared to other cancers, melanoma of the skin figured most prominently amongst the younger age groups. In the 15 to 19 year age category, incidence rates for females and males were equal at 1.3 per 100,000. The female rate in the next age group represents an increase of 192% and the rate of 3.9 was more than double the male rate. Rates increased across almost all other age groups and reached 26.2 for females aged 80 years and older and 33.2 for males.

Incidence rates increased greatly between 1964 and 1988. Female incidence was higher than male incidence in all but 2 of the 25 years. Female incidence was lowest at 1.5 in 1965 and achieved a maximum of 8.9 in 1986. The trend line has a slope of 0.229 (†) and indicates an increase of 246%. Incidence increased by one case every 4.4 years.

Male incidence was lowest at 1.2 in 1965 and increased throughout the period to achieve a maximum of 7.3 in 1987. The trend line has a slope of 0.209 (†) and indicates an increase in incidence of 405%. 4.8 years were required to increase incidence by one case. In 1964, according to the trend lines, female incidence was 1.8 times the male rate. By 1988 this ratio diminished to 1.2, although absolute differences changed little during the interval.

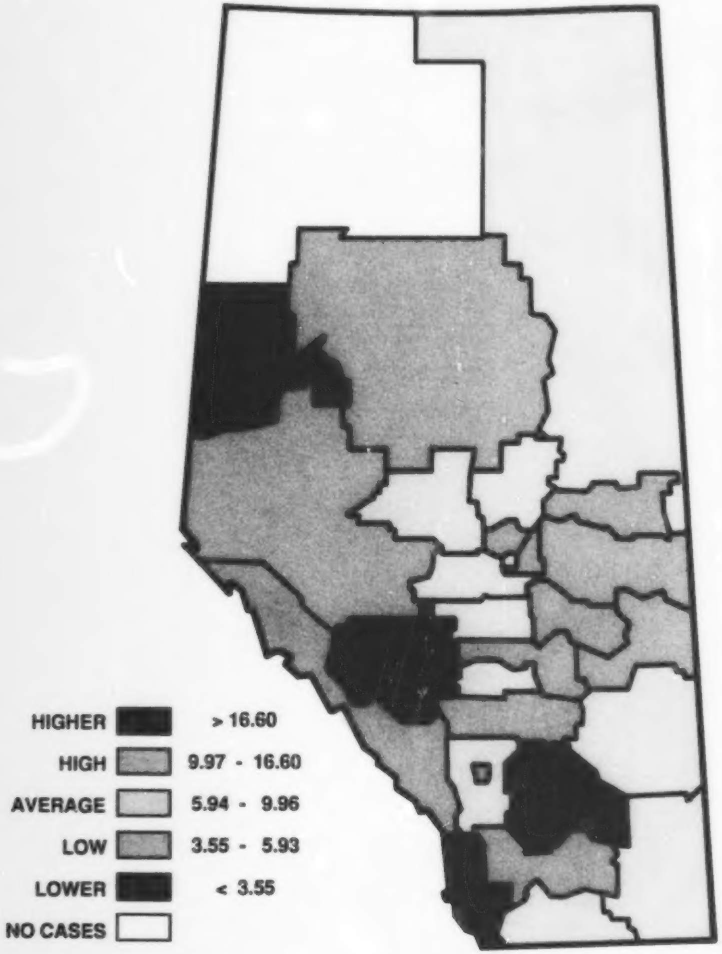
The provincial incidence rates for the mapped data were 7.7 per 100,000 for females and 6.4 for males. On the map of female rates, no areas had higher incidence and 5 areas were high. Lower incidence was observed in 4 areas and 8 areas were low. No cases were recorded in 1 area. The map of male rates shows 1 area with higher incidence and 3 classed as high. Lower incidence was observed in 5 areas and 10 areas were low. No cases were recorded in 1 area. Mapped areas 7, 12 and 23 were above average on both maps while mapped areas 3, 5, 10, 11, 14, 15, 17, 22, and 27 to 29 were below average for both genders.



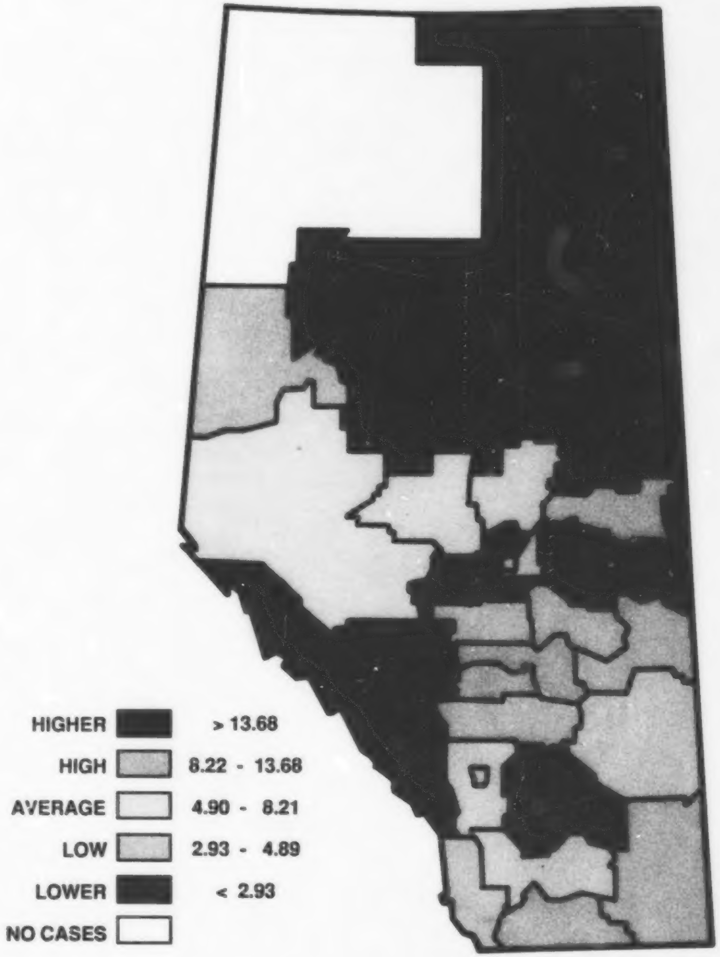


# ICD-9 CODE 172

## FEMALES


HIGHER > 16.60
HIGH 9.97 - 16.60
AVERAGE 5.94 - 9.96
LOW 3.55 - 5.93
LOWER < 3.55
NO CASES

## MALES


HIGHER > 13.68
HIGH 8.22 - 13.68
AVERAGE 4.90 - 8.21
LOW 2.93 - 4.89
LOWER < 2.93
NO CASES

# MELANOMA OF SKIN

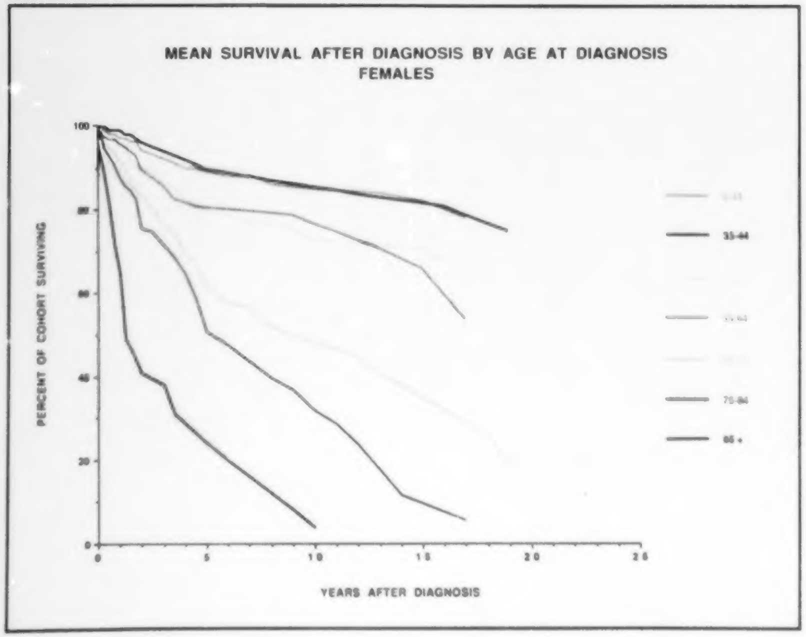
The survival experience of persons diagnosed with melanoma of the skin is shown. Median survival times are tabulated for all age groups, except those where more than half the sample survived beyond the end of the follow-up period.

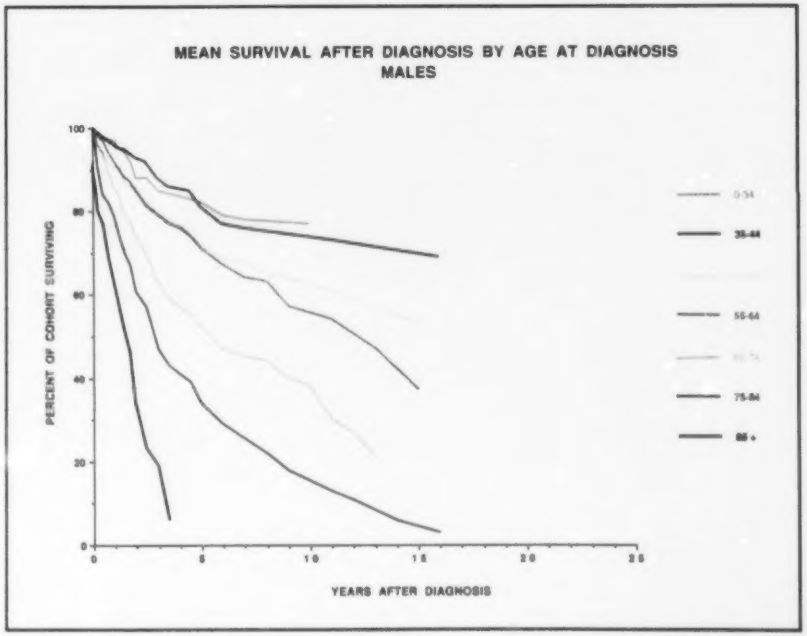
Female survival demonstrated some clustering where the two youngest age groups experienced similar survival as did females in the 45 to 54 and 55 to 64 age groups. Median survival of females aged 65 to 74 was 11.4 years and this was 72% of their anticipated life expectancy. Females in the oldest age group had a median survival time of 16 months and this was just 22% of their anticipated life expectancy.

Male survival was not as good as female survival. Males aged 55 to 64 had a median survival time of 13.8 years which was 72% of their anticipated life expectancy. Median survival times were shorter for each older age group and reached a minimum of 23 months in the oldest males. This was 38% of their anticipated life expectancy.

LIFE EXPECTANCY AFTER DIAGNOSIS

|  | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES |  |  |  |  |  |
| 0-34 | 318 | -- | 63.9 | -- | -- |
| 35-44 | 235 | -- | 41.7 | -- | -- |
| 45-54 | 230 | -- | 32.4 | -- | -- |
| 55-64 | 186 | -- | 23.7 | -- | -- |
| 65-74 | 162 | 11.4 | 15.8 | 4.4 | 72% |
| 75-84 | 99 | 6.8 | 9.1 | 2.4 | 74% |
| 85+ | 40 | 1.3 | 6.0 | 4.7 | 22% |
| MALES |  |  |  |  |  |
| 0-34 | 191 | -- | 57.7 | -- | -- |
| 35-44 | 186 | -- | 36.6 | -- | -- |
| 45-54 | 190 | -- | 27.3 | -- | -- |
| 55-64 | 177 | 13.8 | 19.2 | 5.5 | 72% |
| 65-74 | 144 | 6.4 | 12.3 | 5.9 | 52% |
| 75-84 | 76 | 3.3 | 7.2 | 4.0 | 45% |
| 85+ | 34 | 1.9 | 5.0 | 3.1 | 38% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES

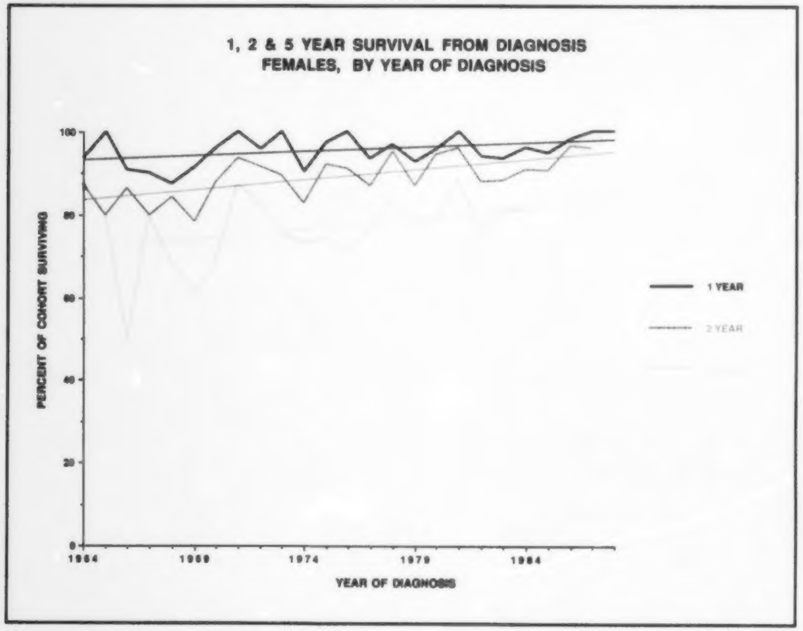

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

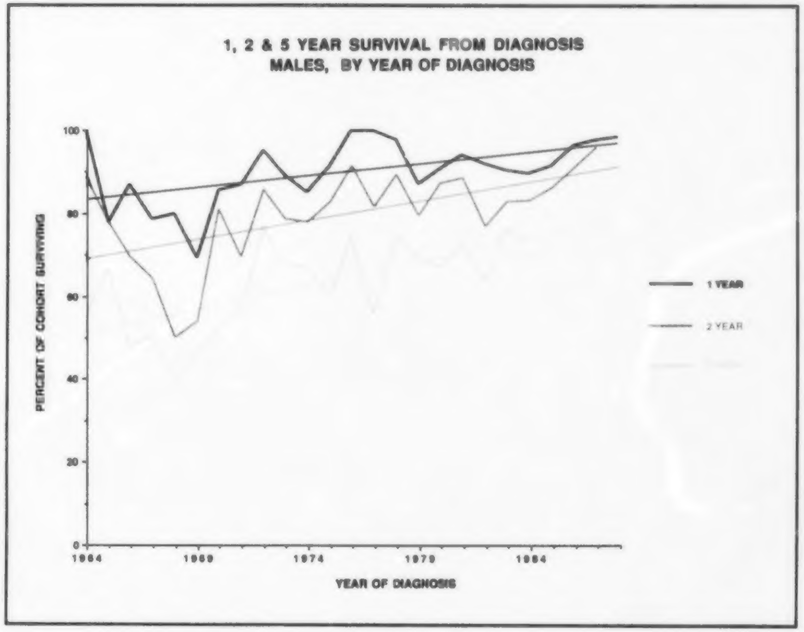
Compared to all other site groups, female one, two, and five year survival rates were similar to those of females diagnosed with cancer of the endocrine glands and were ranked third highest. Annual variation in the rates was relatively large despite a reasonable number of cases each year. The average number of females diagnosed with this cancer was 51 per year and the annual number of cases was never lower than 10.

The slopes of the female trend lines are: one year = 0.192 (↔), two year = 0.475 (↑) and five year = 0.476 (↔). According to the trend lines, one year survival rates began the interval at 93.2% and increased to 97.8% in 1988. Two year survival rates (trend line) increased from 83.5% in 1964 to 94.9% in 1988. On average, two year rates were 93% of one year rates. Five year survival rates (trend line) began the interval at 71.6% and increased to 83.0% in 1988. They averaged 82% of one year survival rates.

For males, the one, two, and five year survival rates ranked second highest. Annual variation in the rates was relatively large and part of this variation can be explained as a small numbers problem. The average number of males diagnosed with this cancer was 40 per year. In 3 years the number of cases was less than 10.

The slopes of the male trend lines are: one year = 0.566 (↑), two year = 0.929 (↑) and five year = 1.171 (↑). According to the trend lines, one year survival rates began the interval at 83.4% and increased to 97.0% in 1988. Two year survival rates (trend line) increased from 69.0% in 1964 to 91.3% in 1988. On average, two year rates were 88% of one year rates. Five year survival rates (trend line) began the interval at 50.8% and increased to 78.9% in 1988. They averaged 71% of one year survival rates.


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

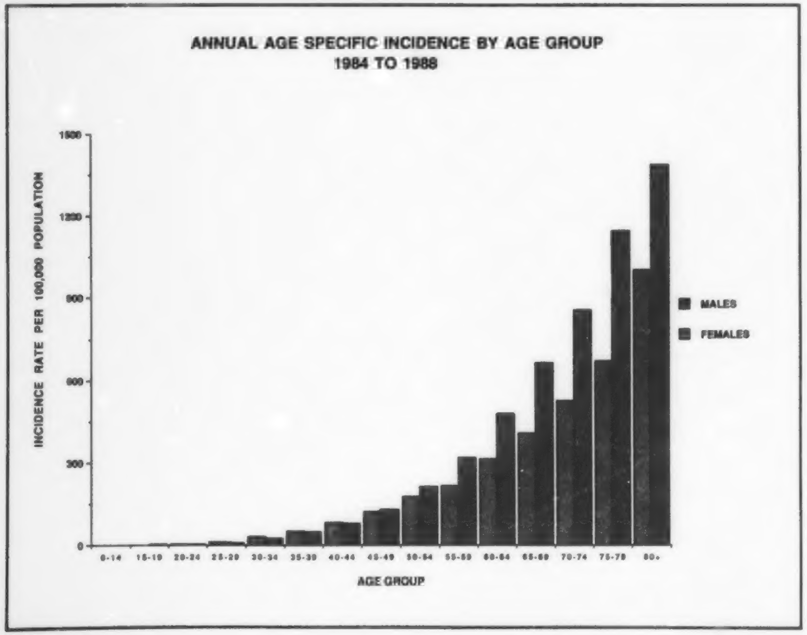
# NON-MELANOMA SKIN

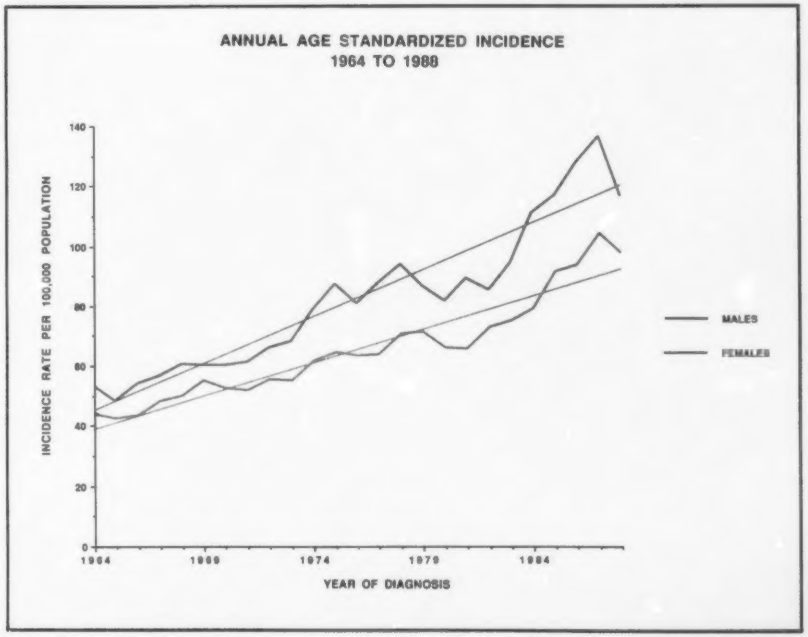
Non-melanoma carcinoma of the skin was the most frequently occurring of all cancers, having very high rates amongst persons older than 25 years. Male rates were about 1.5 times higher than female rates in all age groups over 55. For females, the incidence rate in the 20 to 24 age group was 5.5 per 100,000 and incidence increased through all ages to reach a maximum of 1,000.7 for females aged 80 years and older. Corresponding male rates were 3.8 per 100,000 for 20 to 24 year olds and 1,390.1 amongst males over 80.

Incidence rates increased steadily between 1964 and 1988 but this may be due in part to changed reporting practices. Female incidence was less than male incidence in every year. In 1965 the lowest incidence rate of 42.7 was recorded and it peaked at 104.1 in 1987. The trend line has a slope of 2.212 (†) and indicates an increase of 135% over the period. Only 0.5 years were required for incidence to increase by one case.

The lowest male rate of 48.1 occurred in 1965 and a maximum rate of 135.8 was recorded in 1987. The trend line has a slope of 3.132 (†) and shows an increase of 168% over the period. Just 0.3 years were required for incidence to increase by one case per 100,000. According to the trend line the ratio of male incidence to female incidence was 1.1 in 1964 and by 1988 this ratio increased to 1.3.

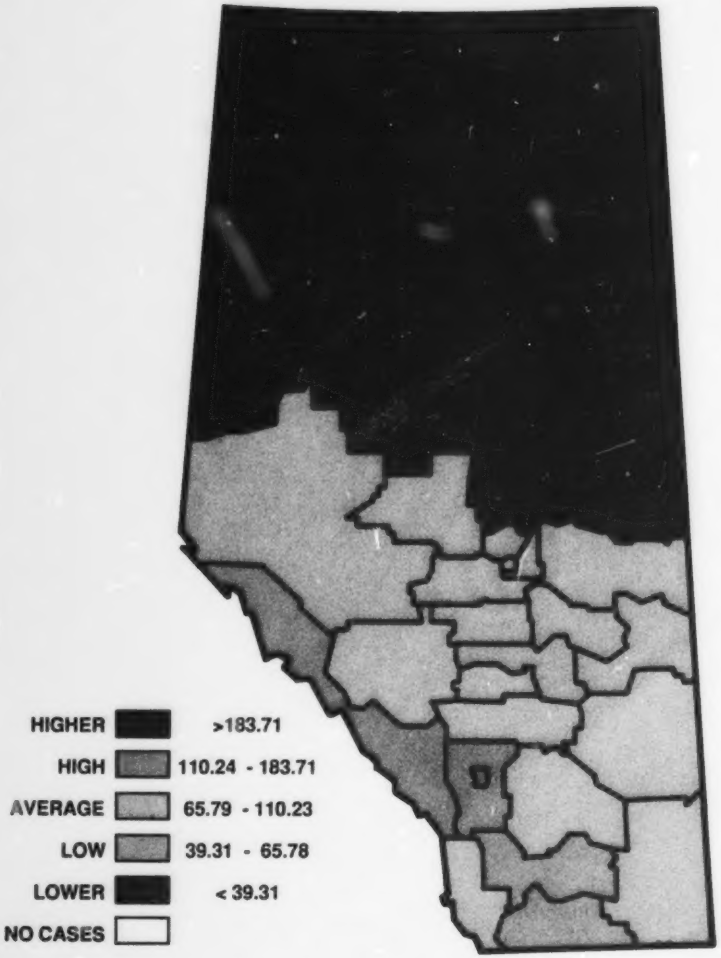
The provincial incidence rates for the mapped data were 85.4 per 100,000 for females and 103.2 for males. On the map of female rates, no areas had higher incidence and 5 areas were high. Lower incidence was observed in 6 areas and 11 areas were low. The map of male rates shows no areas with higher incidence and 4 classed as high. Lower incidence was observed in 7 areas and another 7 areas were low. Mapped areas 2, 4, 6 and 8 were above average on both maps while mapped areas 11, 15, 17, 18, 19, 21 and 22 to 29 were below average for both genders.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1984 TO 1988

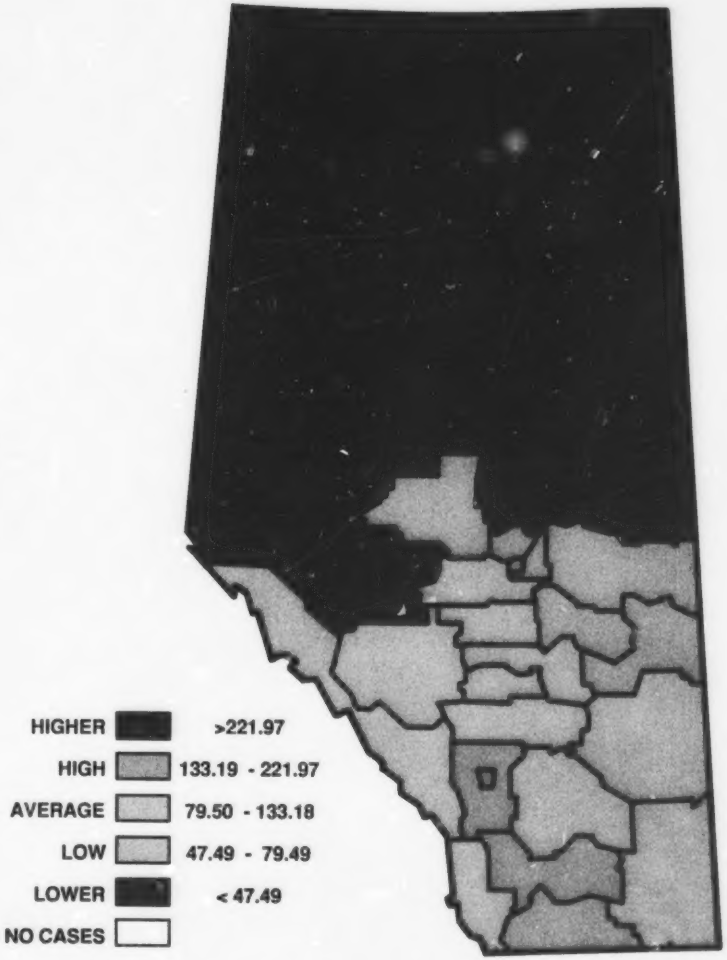

ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

# ICD-9 CODES 173

FEMALES


HIGHER >183.71
HIGH 110.24 - 183.71
AVERAGE 65.79 - 110.23
LOW 39.31 - 65.78
LOWER < 39.31
NO CASES

MALES


HIGHER >221.97
HIGH 133.19 - 221.97
AVERAGE 79.50 - 133.18
LOW 47.49 - 79.49
LOWER < 47.49
NO CASES

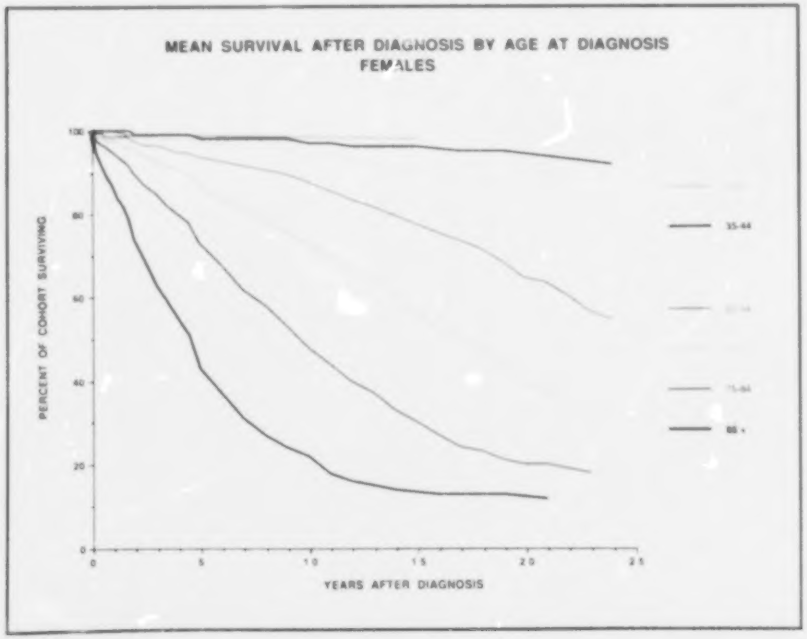
# NON-MELANOMA SKIN

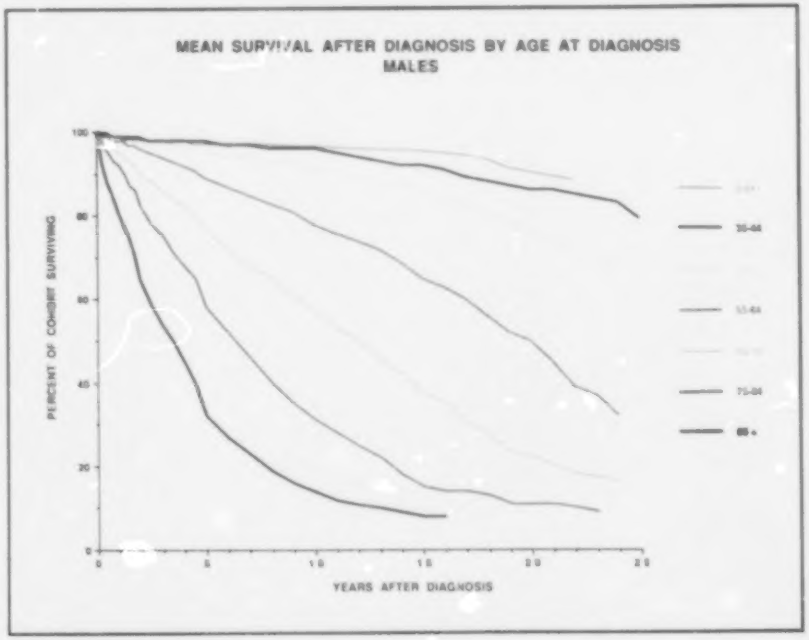
The survival experience of persons diagnosed with non-melanoma cancer of the skin is shown. Median survival times are tabulated for all age groups except those where more than half the sample survived beyond the end of the follow-up period.

Non-melanoma cancer of the skin is not a fatal disease. Median survival times, where calculated, equalled or exceeded the anticipated life expectancy in all age categories except the oldest group in each gender.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 716 | -- | 63.9 | -- | -- |
| 35-44 | 1318 | -- | 41.7 | -- | -- |
| 45-54 | 2352 | -- | 32.4 | -- | -- |
| 55-64 | 3218 | -- | 23.7 | -- | -- |
| 65-74 | 3893 | 17.5 | 15.8 | -1.7 | 111% |
| 75-84 | 3385 | 10.3 | 9.1 | -1.2 | 114% |
| 85+ | 1591 | 5.0 | 6.0 | 1.0 | 83% |
| MALES | | | | | |
| 0-34 | 568 | -- | 57.7 | -- | -- |
| 35-44 | 1358 | -- | 36.6 | -- | -- |
| 45-54 | 2971 | -- | 27.3 | -- | -- |
| 55-64 | 4790 | 19.8 | 19.2 | -0.6 | 103% |
| 65-74 | 5462 | 12.6 | 12.3 | -0.3 | 102% |
| 75-84 | 4224 | 7.1 | 7.2 | 0.1 | 98% |
| 85+ | 1443 | 3.9 | 5.0 | 1.1 | 78% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES

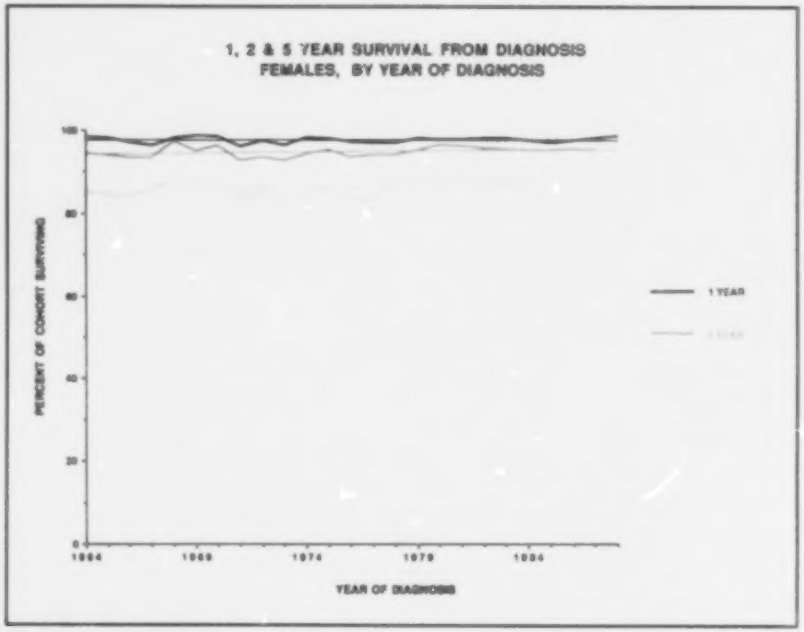

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

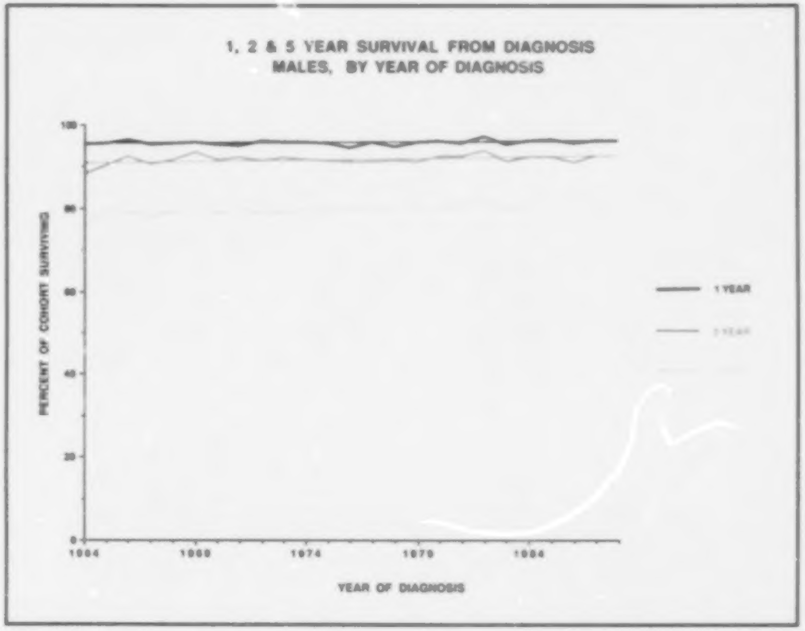
Compared to all other site groups, female one, two, and five year survival rates ranked second highest. Annual variation in the rates was very small and a large number of cases each year contributed to this. The average number of females diagnosed with this cancer was 658 per year and the annual number of cases was never lower than 264.

The slopes of the female trend lines are: one year = -0.004 (↔), two year = 0.048 (↔) and five year = 0.117 (↔). According to the trend lines, one year survival rates began the interval at 97.6% and decreased slightly to 97.5% in 1988. Two year survival rates (trend line) increased slightly from 94.1% in 1964 to 95.3% in 1988. On average, two year rates were 96% of one year rates. Five year survival rates (trend line) began the interval at 85.0% and increased slightly to 87.8% in 1988. They averaged 88% of one year survival rates.

For males, the one, two and five year survival rates ranked highest. Annual variation in the rates was very small and a large number of cases each year contributed to this. The average number of males diagnosed with this cancer was 831 per year and the annual number of cases was never lower than 359.

The slopes of the male trend lines are: one year = 0.022 (↔), two year = 0.058 (↔) and five year = 0.126 (↑). According to the trend lines, one year survival rates began the interval at 95.7% and increased slightly to 96.2% in 1988. Two year survival rates (trend line) increased slightly from 91.0% in 1964 to 92.4% in 1988. On average, two year rates were 95% of one year rates. Five year survival rates (trend line) began the interval at 78.5% and increased slightly to 81.6% in 1988. They averaged 84% of one year survival rates.


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

# BREAST

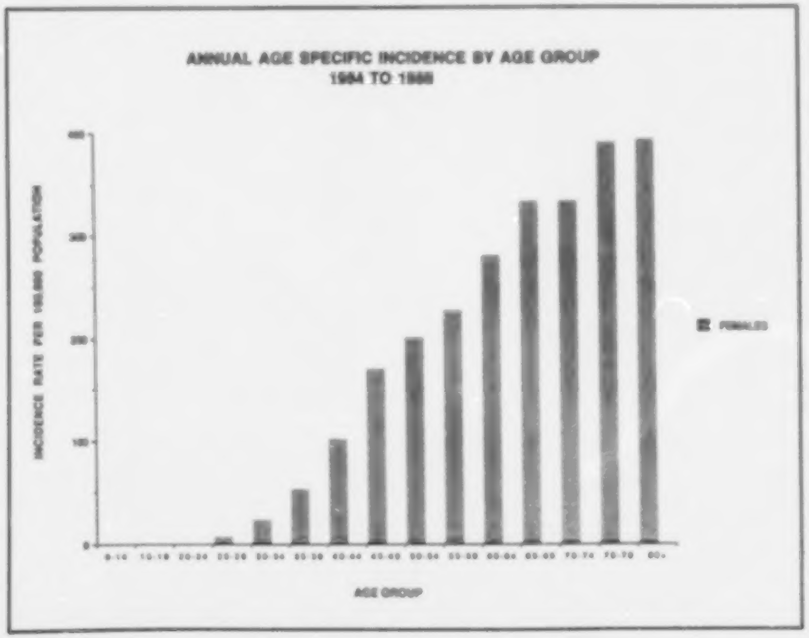
Although the incidence of female breast cancer was low in the three youngest age groups, in females over the age of 25 years, the incidence of breast cancer was second only to non-melanoma skin cancer. In females aged 45 to 64 years, breast cancer accounts for 26% of all cancer incidence.

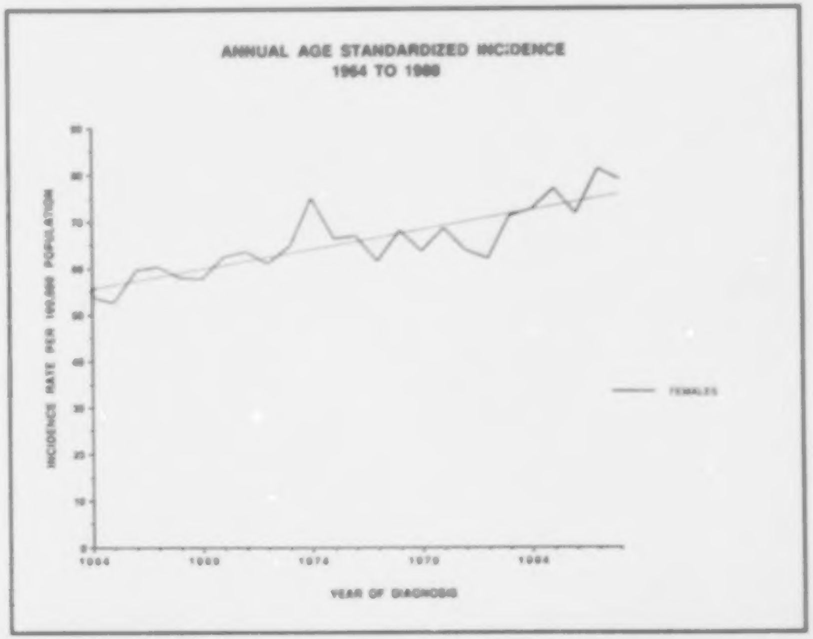
The incidence of female breast cancer was 7.2 per 100,000 for 25 to 29 year olds and a maximum incidence of 392.5 was registered amongst females older than 80 years. The largest proportional increases in incidence occurred at the younger ages where the incidence for 35 to 39 year olds was 122% higher than that for 30 to 34 year olds.

Incidence rates demonstrated a trend to increase over time. The lowest rate of 52.5 was recorded in 1965 and the 1987 rate of 80.9 was highest.

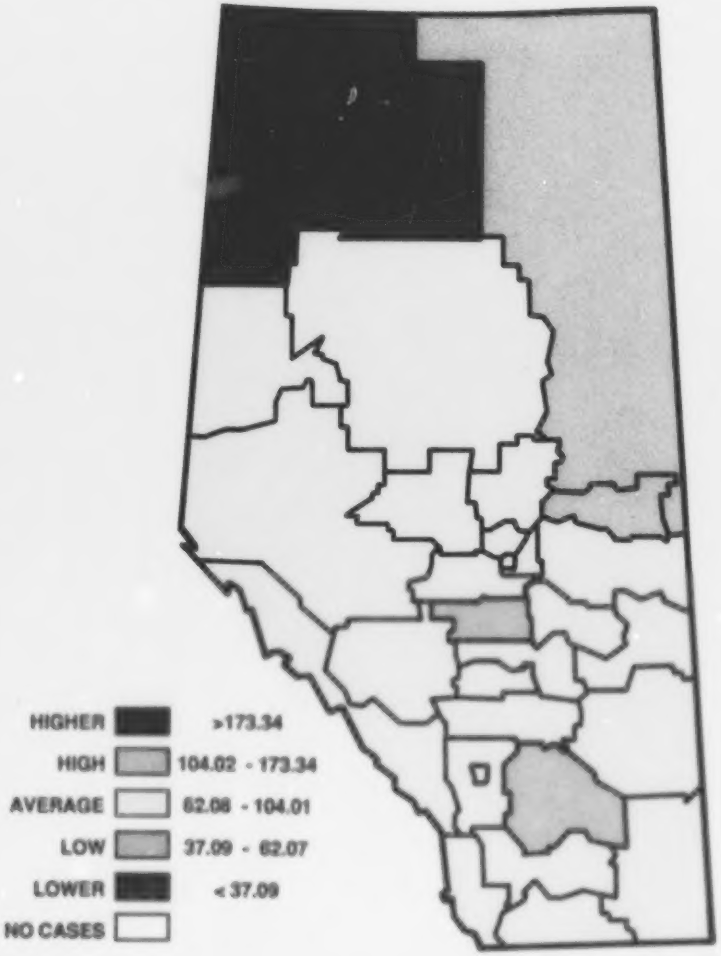
The trend line has a slope of 0.840 (↑). The trend line indicates an increase in incidence of 36% over the 1964 to 1988 period and 1.2 years were required for the rate to increase by one case per 100,000.

The provincial incidence rate for the mapped data was 80.6 per 100,000. On the map, no areas had higher incidence and only 1 area was high. Lower incidence was observed in 1 area and 3 areas were low.





FEMALES


HIGHER >173.34
HIGH 104.02 - 173.34
AVERAGE 62.08 - 104.01
LOW 37.09 - 62.07
LOWER < 37.09
NO CASES

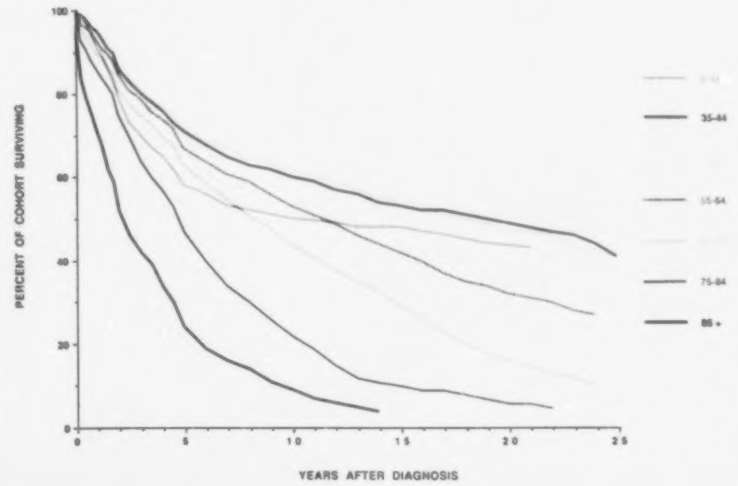
# BREAST

The survival experience of females diagnosed with breast cancer is shown and median survival times are tabulated. The most striking feature is that for females who are young at the time of diagnosis, survival is relatively poor. Median survival for the youngest females was 10.2 years compared to the longest median survival of 19.4 years experienced by 35 to 44 year olds. The impact of the disease in terms of potential years of life lost was greatest in youngest females (53.7 years lost) and they lived an average of only 16% of their anticipated life expectancy. Females aged 75 to 84 lived on average 60% of their anticipated life expectancy.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| 0-34 | 564 | 10.2 | 63.9 | 53.7 | 16% |
| 35-44 | 2094 | 19.4 | 41.7 | 22.3 | 47% |
| 45-54 | 3764 | 18.2 | 32.4 | 14.2 | 56% |
| 55-64 | 3675 | 12.0 | 23.7 | 11.7 | 51% |
| 65-74 | 3105 | 9.0 | 15.8 | 6.8 | 57% |
| 75-84 | 1827 | 5.4 | 9.1 | 3.7 | 60% |
| 85+ | 670 | 2.7 | 6.0 | 3.3 | 44% |

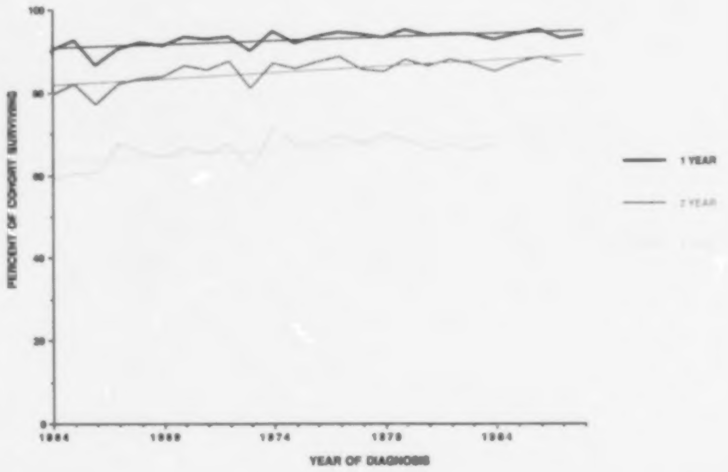
MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES



Compared to all other female site groups, these one, two, and five year survival rates ranked fourth highest. Annual variation in the rates was very small and a large number of cases each year contributed to this. The average number of females diagnosed with this cancer was 628 per year and the annual number of cases was never lower than 346.

The slopes of the female trend lines are: one year = 0.157 (†), two year = 0.291 (†) and five year = 0.319 (†). According to the trend lines, one year survival rates began the interval at 91.0% and increased to 94.8% in 1988. Two year survival rates (trend line) increased from 81.8% in 1964 to 88.7% in 1988. On average, two year rates were 91% of one year rates. Five year survival rates (trend line) began the interval at 62.9% and increased to 70.6% in 1988. They averaged 71% of one year survival rates.

1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS

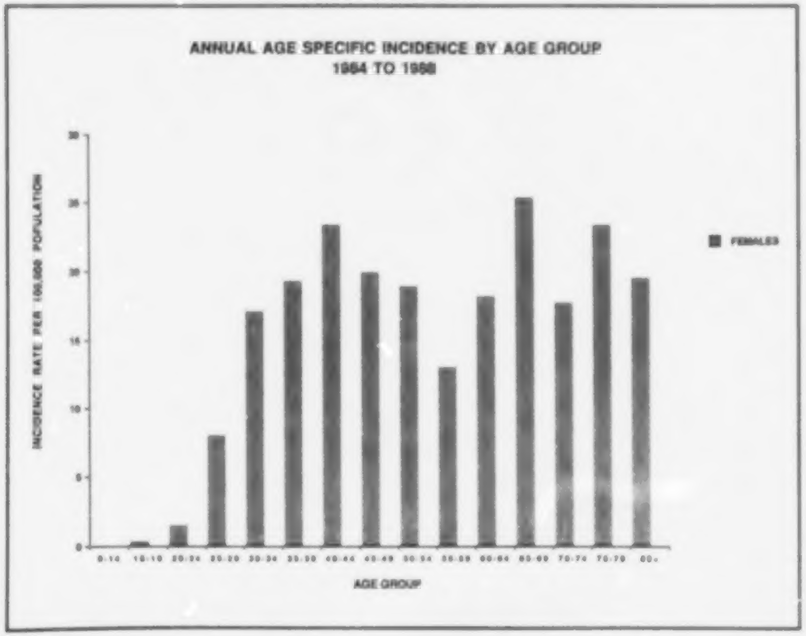


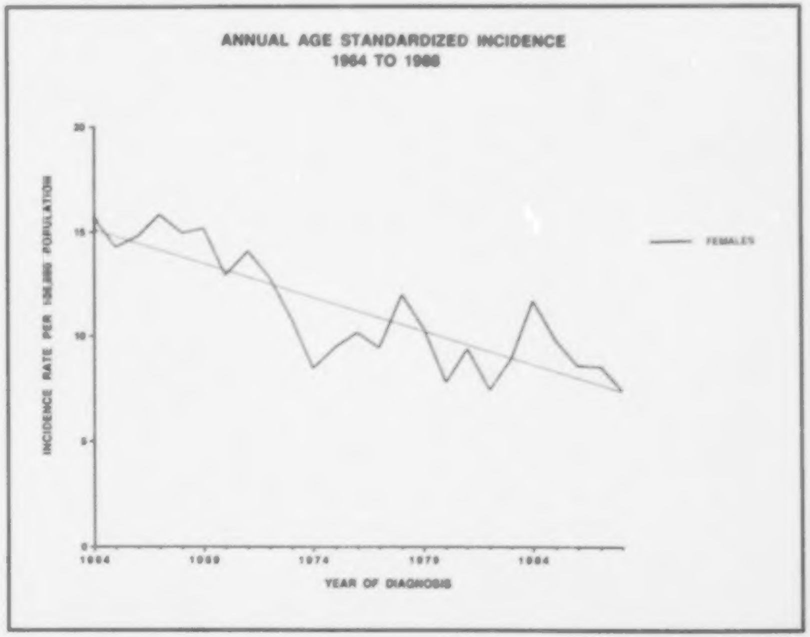
# CERVIX UTERI - INVASIVE

Invasive cancer of the cervix uteri was the ninth most common cancer site for females and was especially common in females aged 25 to 44 years. The pattern of incidence departs from the usual one of rising incidence in older age groups. Incidence in females aged 25 to 29 was 8.1 per 100,000 and a maximum incidence of 25.5 was observed in females aged 65 to 69 years. Very large proportional increases in incidence were observed between the age groups below 30 to 34 years.

Incidence rates declined between 1964 and 1988. The highest incidence of 15.8 was recorded in 1967 and the lowest value of 7.4 was observed in 1988. The trend line has a slope of -0.322 (↓) and demonstrates a decrease in incidence of 51% between 1964 and 1988. The number of years required to observe a decrease of one case per 100,000 in incidence was 3.1.

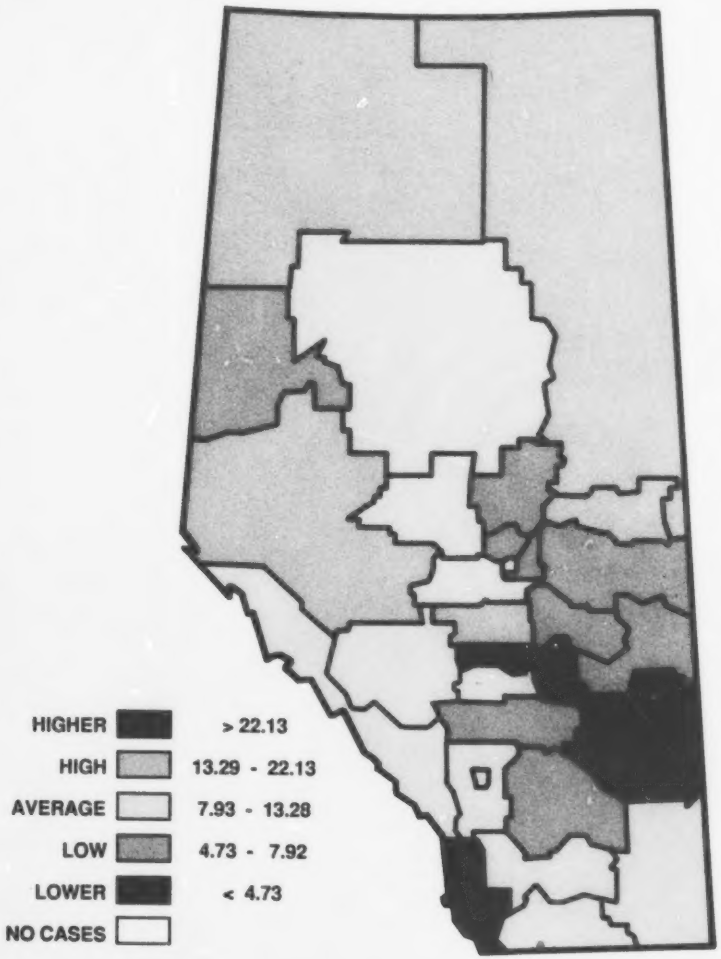
The provincial incidence rates for the mapped data was 10.3 cases per 100,000. On the map, 1 area had higher incidence and 5 areas were high. Lower incidence was observed in 2 areas and 9 areas were low.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1964 TO 1988


ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

# ICD-9 CODE 180

## FEMALES


HIGHER ■ > 22.13
HIGH ▨ 13.29 - 22.13
AVERAGE ☐ 7.93 - 13.28
LOW ▨ 4.73 - 7.92
LOWER ■ < 4.73
NO CASES ☐

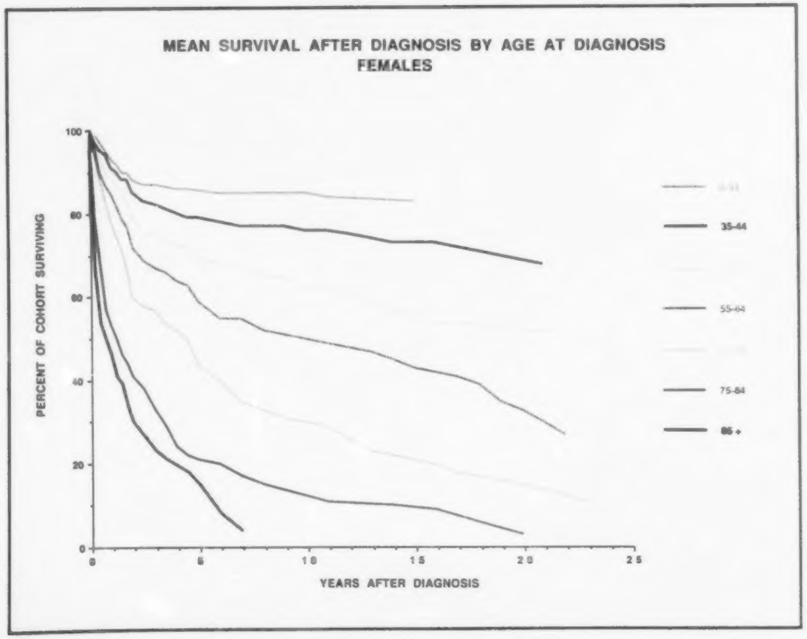
# CERVIX UTERI - INVASIVE

The survival experience of females diagnosed with invasive cancer of the cervix uteri is shown and median survival times are tabulated except where more than half the sample survived beyond the follow-up period. Differences between age groups were distinct and median survival times progressively shortened with increasing age. Median survival for females aged 45 to 54 was 23.9 years, while the oldest age group experienced a median survival time of just 12 months.

Females aged 45 to 54 lived an average of 74% of their anticipated life expectancy and this proportion was lowest at 16% for the 75 to 84 age group.

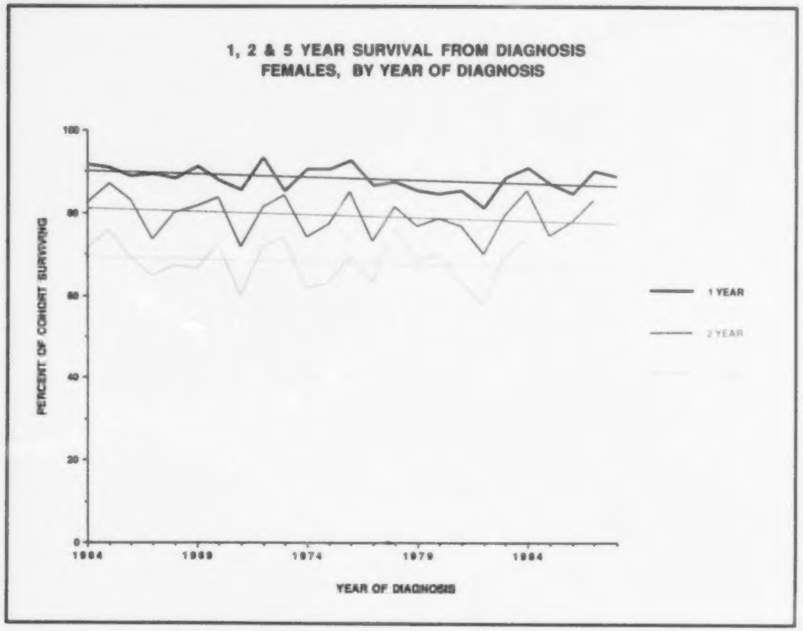
LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| 0-34 | 517 | -- | 63.9 | -- | -- |
| 35-44 | 670 | -- | 41.7 | -- | -- |
| 45-54 | 517 | 23.9 | 32.4 | 8.5 | 74% |
| 55-64 | 402 | 11.8 | 23.7 | 11.9 | 50% |
| 65-74 | 295 | 5.0 | 15.8 | 10.8 | 32% |
| 75-84 | 164 | 1.4 | 9.1 | 7.7 | 16% |
| 85+ | 46 | 1.0 | 6.0 | 5.0 | 17% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES

Compared to all other female site groups, these one, two, and five year survival rates ranked seventh highest. Annual variation in the rates was relatively small and a large number of cases each year contributed to this. The average number of females diagnosed with this cancer was 104 per year and the annual number of cases was never lower than 71.

The slopes of the female trend lines are: one year = -0.159 (↓), two year = -0.162 (↔) and five year = -0.126 (↔). According to the trend lines, one year survival rates began the interval at 90.0% and decreased to 86.2% in 1988. Two year survival rates (trend line) decreased from 81.0% in 1964 to 77.1% in 1988. On average, two year rates were 90% of one year rates. Five year survival rates (trend line) began the interval at 69.2% and decreased slightly to 66.2% in 1988. They averaged 77% of one year survival rates.


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS

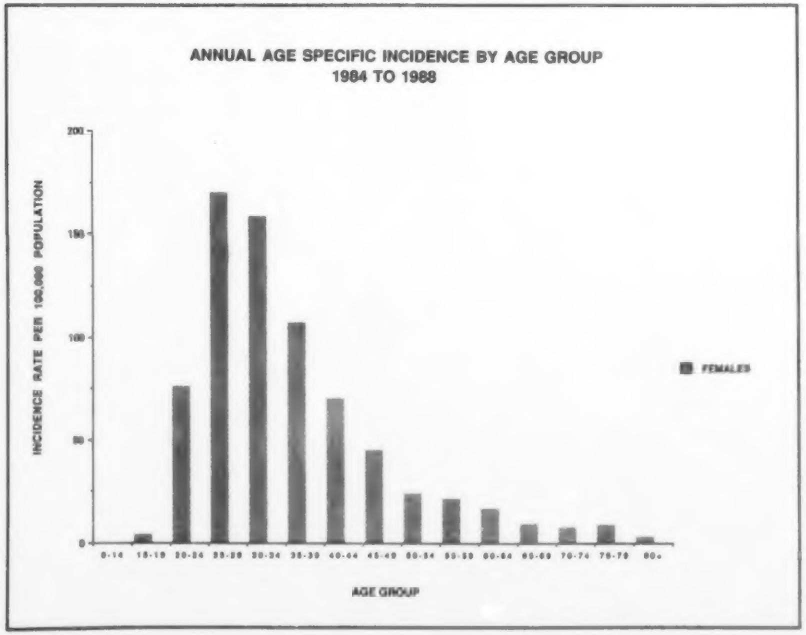
# CERVIX - IN SITU

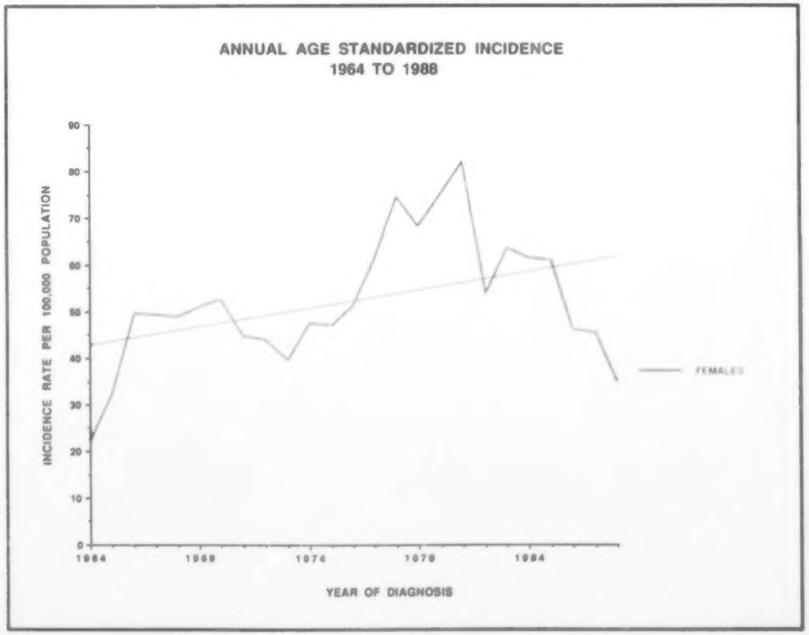
In terms of incidence, in situ cancer of the cervix was the third most important cancer for females overall and was particularly important for females aged 15 to 44 years. The age-specific incidence distribution made a rapid climb from 4.4 per 100,000 in the 15 to 19 year age group to a peak of 169.6 amongst 25 to 29 year olds. The decline in incidence occurred across all older age groups to reach 3.2 for females over the age of 80 years.

Incidence rates demonstrated much variation between 1964 and 1988 and were characterized by periods of marked increase followed by dramatic decrease. These can be explained in part by changes in reporting practices. The pattern in the initial years of the interval and the final years demonstrate that the linear trend through the data is not a particularly good fit. The lowest incidence of 22.4 occurred in 1964 and the highest rate of 81.9 was recorded in 1981. By 1988 the rate declined to 34.7.

Recognizing that the trend line is a poor representation of the data, its slope is 0.787 (↑). The trend demonstrates that incidence increased by 44% between 1964 and 1968.

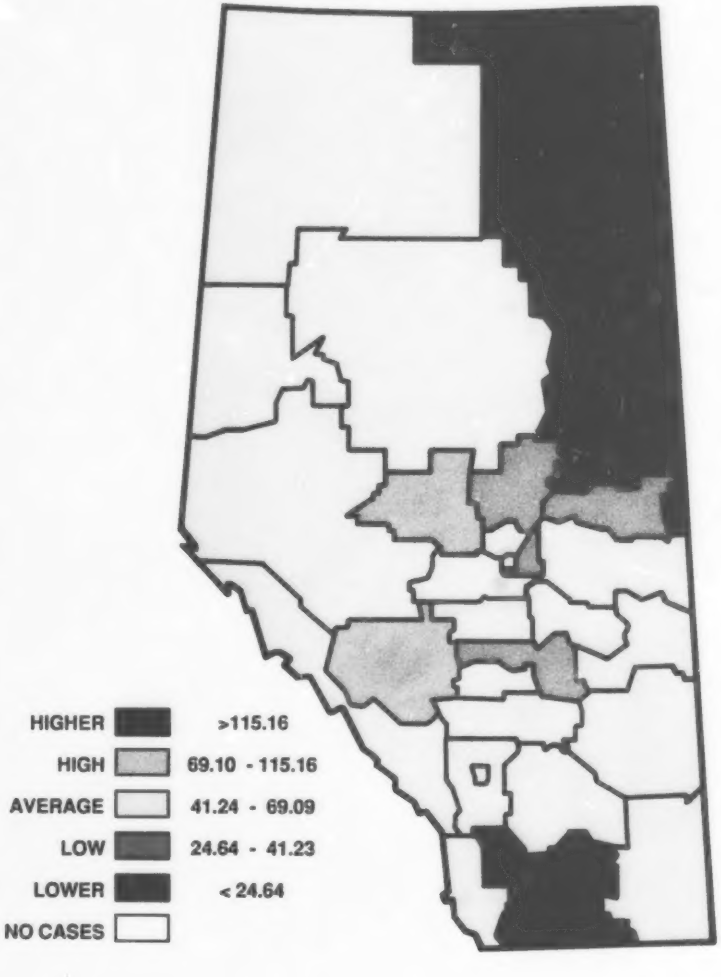
The provincial incidence rates for the mapped data was 53.6 per 100,000. On the map, no areas had higher incidence and 2 areas were high. Lower incidence was observed in 3 areas and 4 areas were low.





# ICD-9 CODE 233.1

## FEMALES

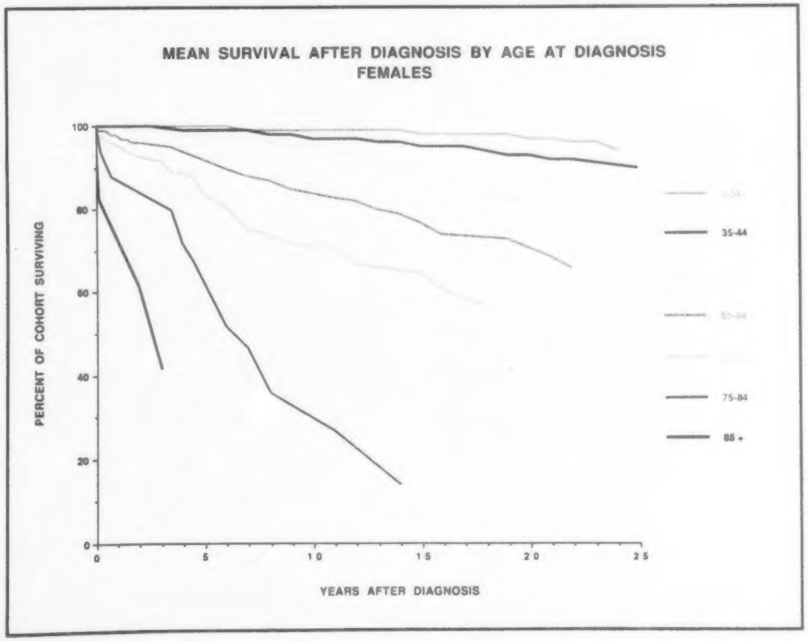

HIGHER
>115.16
HIGH
69.10 - 115.16
AVERAGE
41.24 - 69.09
LOW
24.64 - 41.23
LOWER
< 24.64
NO CASES

# CERVIX - IN SITU

The survival experience of females diagnosed with in situ carcinoma of the cervix is shown and median survival times are tabulated for the oldest two age groups. All other age groups ended the follow-up period with more than 50% of the cohort surviving. Even amongst 65 to 74 year olds, whose anticipated life expectancy is 15.8 years, the percentage surviving to 25 years was 56%.

LIFE EXPECTANCY AFTER DIAGNOSIS

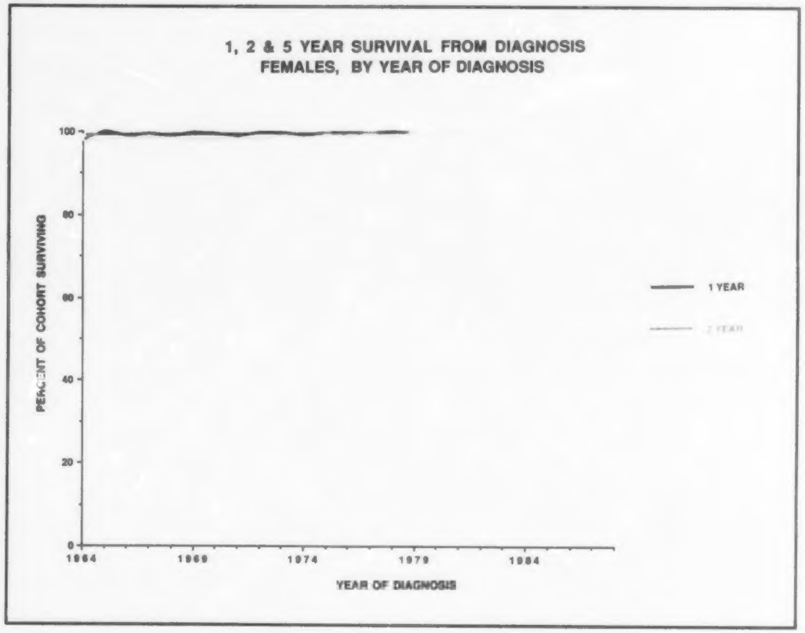
| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| 0-34 | 8488 | -- | 63.9 | -- | -- |
| 35-44 | 3081 | -- | 41.7 | -- | -- |
| 45-54 | 996 | -- | 32.4 | -- | -- |
| 55-64 | 383 | -- | 23.7 | -- | -- |
| 65-74 | 128 | -- | 15.8 | -- | -- |
| 75-84 | 33 | 7.3 | 9.1 | 1.9 | 80% |
| 85+ | 6 | 3.3 | 6.0 | 2.8 | 54% |



MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES

Compared to all other female site groups, these one, two and five year survival rates ranked highest. Annual variation in the rates was very small and a large number of cases each year contributed to this. The average number of females diagnosed with this cancer was 525 per year and the annual number of cases was never lower than 142.

The slopes of the female trend lines are: one year = 0.040 (↑), two year = 0.042 (↑) and five year = 0.080 (↑). According to the trend lines, one year survival rates began the interval at 99.1% and increased slightly to 100.0 in 1988. Two year survival rates (trend line) increased slightly from 98.9% in 1964 to 100.0% in 1988. On average, two year rates were 100% of one year rates. Five year survival rates (trend line) began the interval at 97.9% and increased slightly to 99.8% in 1988. They averaged 99% of one year survival rates.

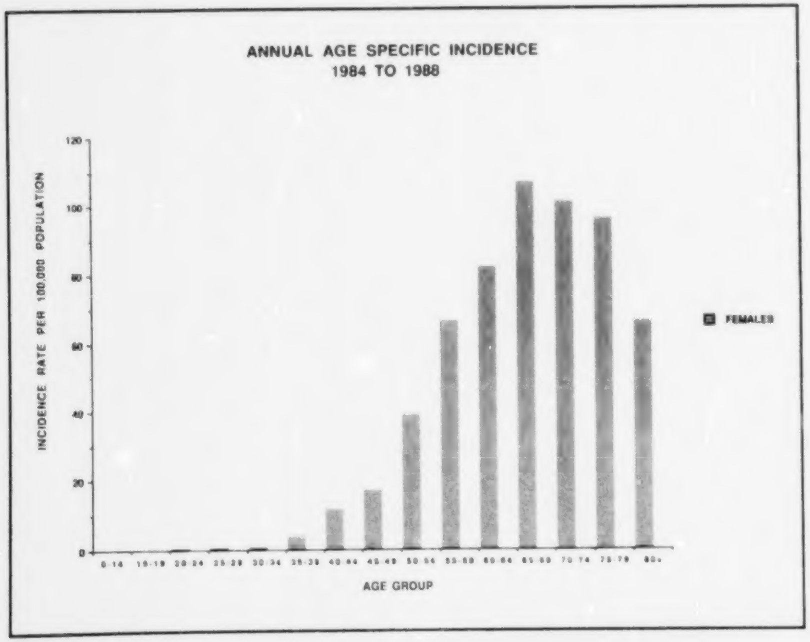

1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS

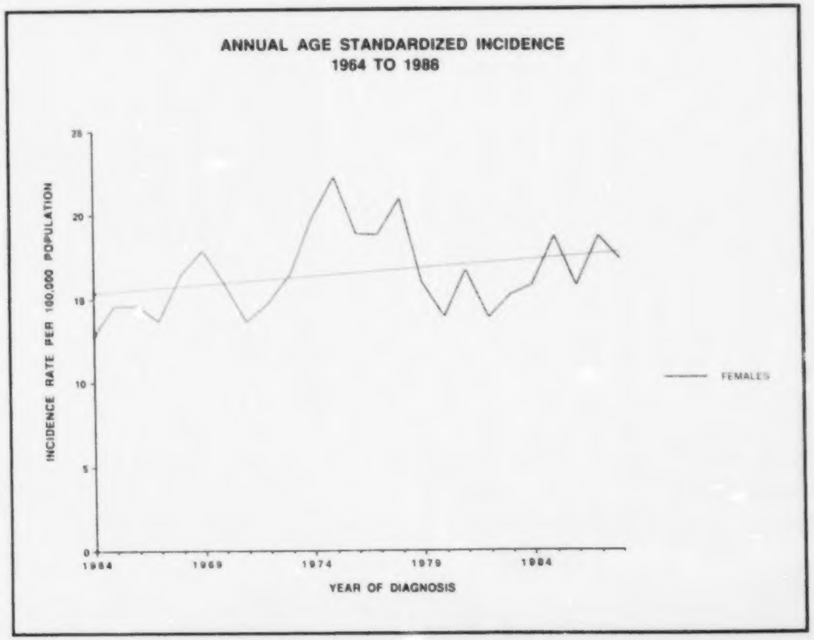
# S UTERI

Cancer of the corpus uteri (endometrium) was the seventh most frequently occurring cancer for females. Its importance in terms of incidence was most dramatic in females older than 45 years. Incidence rates were 1.1 cases per 100,000 females aged 30 to 34 years and large increases occurred up to the 65 to 69 year age group where incidence peaked at 107.2 cases per 100,000. In the oldest age group, incidence was 66.5 cases per 100,000 females.

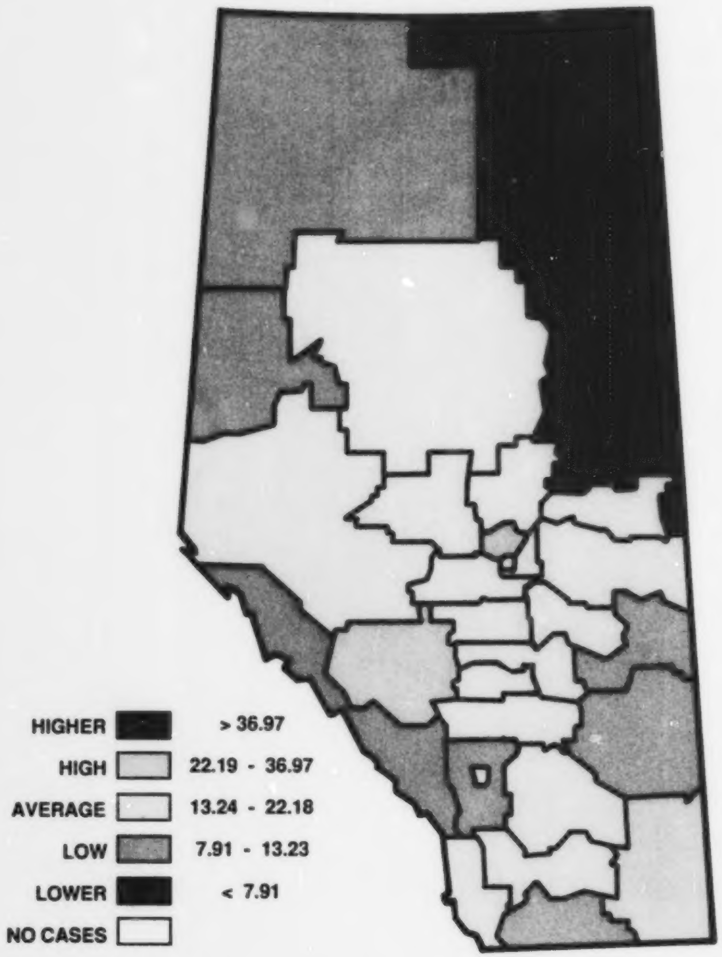
Incidence rates tended to increase between 1964 and 1988 although the variation from year to year was large. The lowest incidence of 12.7 cases per 100,000 occurred in 1964 and in 1988 incidence was 17.2. The slope of the trend line is 0.096 (↔). The slope indicates that incidence increased by 15% over the interval and that incidence increased by one case per 100,000 every 10.4 years.

The provincial incidence rate for the mapped data was 17.2 cases per 100,000. On the map, no areas had higher incidence and 3 areas were high. Lower incidence was observed in 1 area and 7 areas were low.


ANNUAL AGE SPECIFIC INCIDENCE
1984 TO 1988


ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

## FEMALES


HIGHER ■ > 36.97
HIGH ▨ 22.19 - 36.97
AVERAGE ☐ 13.24 - 22.18
LOW ▨ 7.91 - 13.23
LOWER ■ < 7.91
NO CASES ☐

# CORPUS UTERI

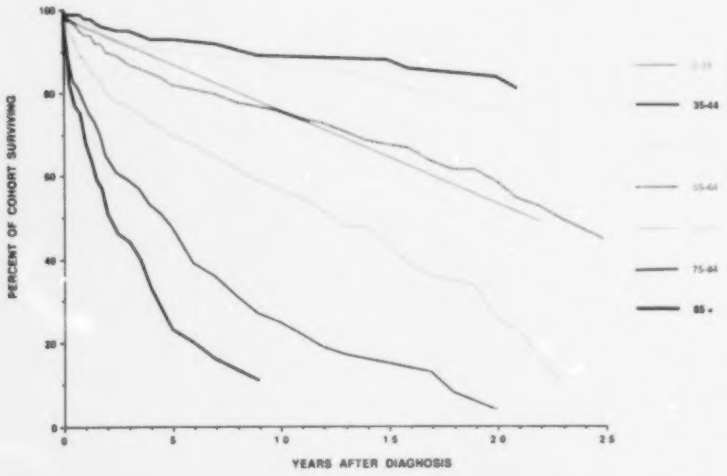
The survival experience of females diagnosed with cancer of the corpus uteri is shown. Median survival times are tabulated for all age groups except those where more than half the sample survived beyond the end of the follow-up period.

The youngest females had a median survival time of 22.3 years and this is just 35% of their anticipated life expectancy. Other age groups fared better and females aged 55 to 64 had a median survival time that was 99% of their anticipated life expectancy. The oldest females, with a median survival time of 31 months, lived on average 43% of their anticipated life expectancy.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| 0-34 | 43 | 22.3 | 63.9 | 41.6 | 35% |
| 35-44 | 196 | -- | 41.7 | -- | -- |
| 45-54 | 715 | -- | 32.4 | -- | -- |
| 55-64 | 1401 | 23.5 | 23.7 | 0.2 | 99% |
| 65-74 | 953 | 13.0 | 15.8 | 2.8 | 82% |
| 75-84 | 410 | 5.2 | 9.1 | 3.9 | 57% |
| 85+ | 91 | 2.6 | 6.0 | 3.4 | 43% |

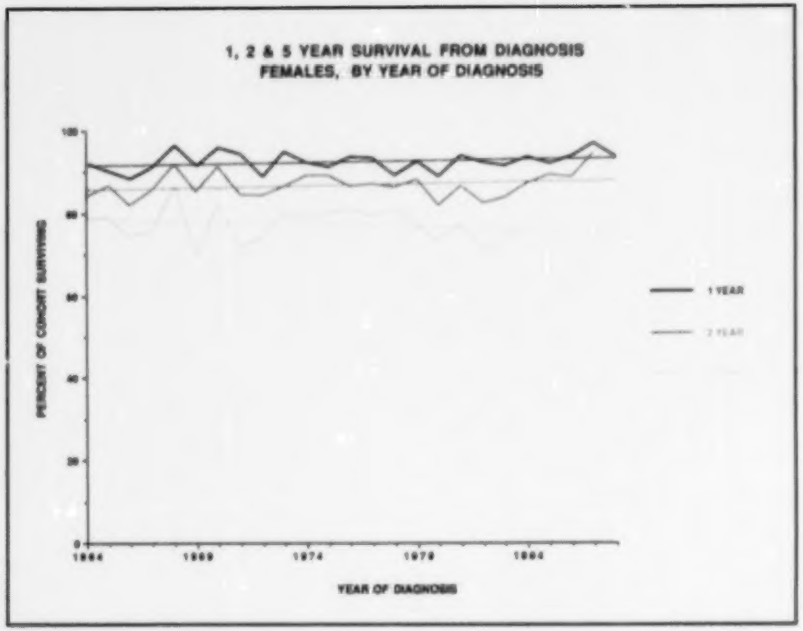
MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES



Compared to all other female site groups, these one, two, and five year survival rates ranked fifth highest. Annual variation in the rates was relatively small and a large number of cases each year contributed to this. The average number of females diagnosed with this cancer was 152 per year and the annual number of cases was never lower than 77.

The slopes of the female trend lines are: one year = 0.072 (↔), two year = 0.087 (↔) and five year = -0.122 (↔). According to the trend lines, one year survival rates began the interval at 91.5% and increased slightly to 93.3% in 1988. Two year survival rates (trend line) increased slightly from 85.7% in 1964 to 87.8% in 1988. On average, two year rates were 94% of one year rates. Five year survival rates (trend line) began the interval at 78.5% and decreased slightly to 75.6% in 1988. They averaged 85% of one year survival rates.

1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS

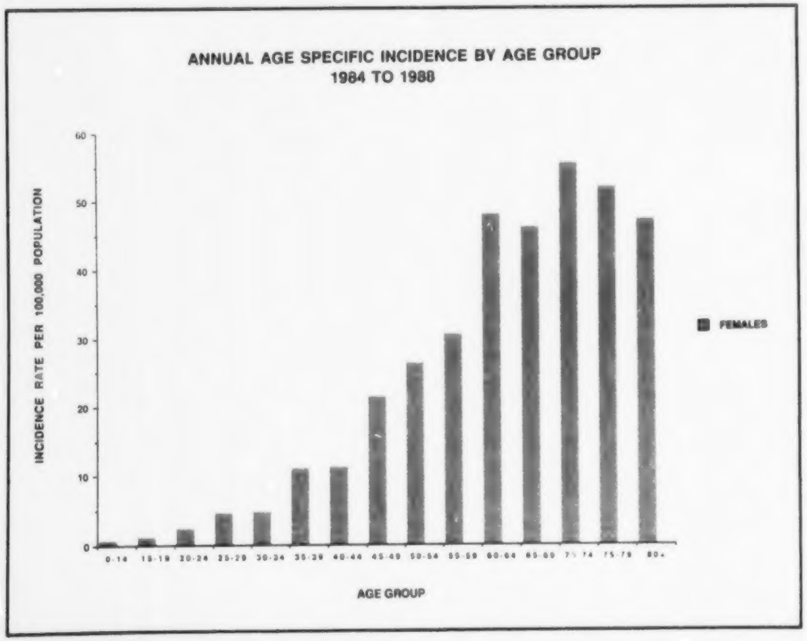


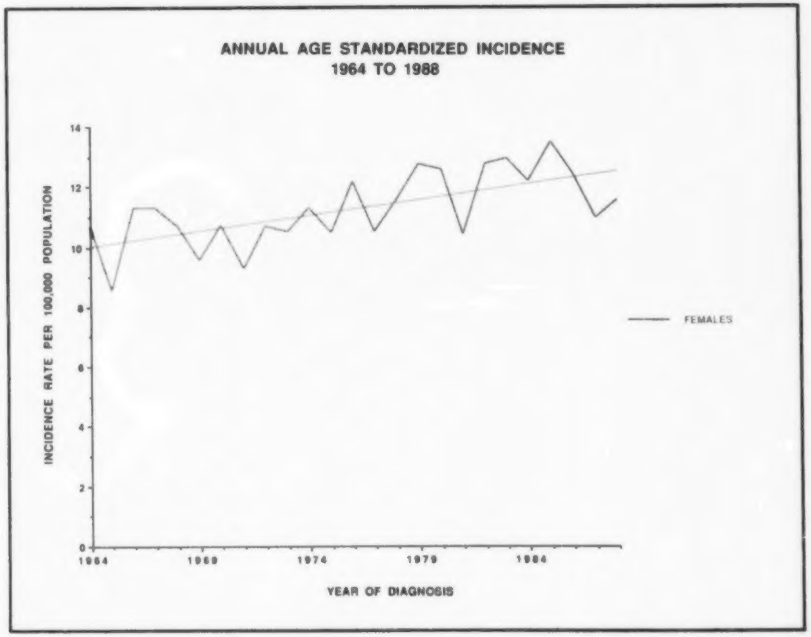
# OVARY, FALLOPIAN TUBE

Cancer of the ovary and fallopian tube was the eighth most frequently occurring cancer for females. It accounted for approximately 3% of all female cancer cases and 5% of cancers amongst females aged 0 to 14 years. Incidence in the youngest age group was 0.6 cases per 100,000 and increases occurred through all age groups up to 70 to 74 year olds where the incidence was 55.0. In the oldest age group, the incidence rate declined to 47.6 cases per 100,000.

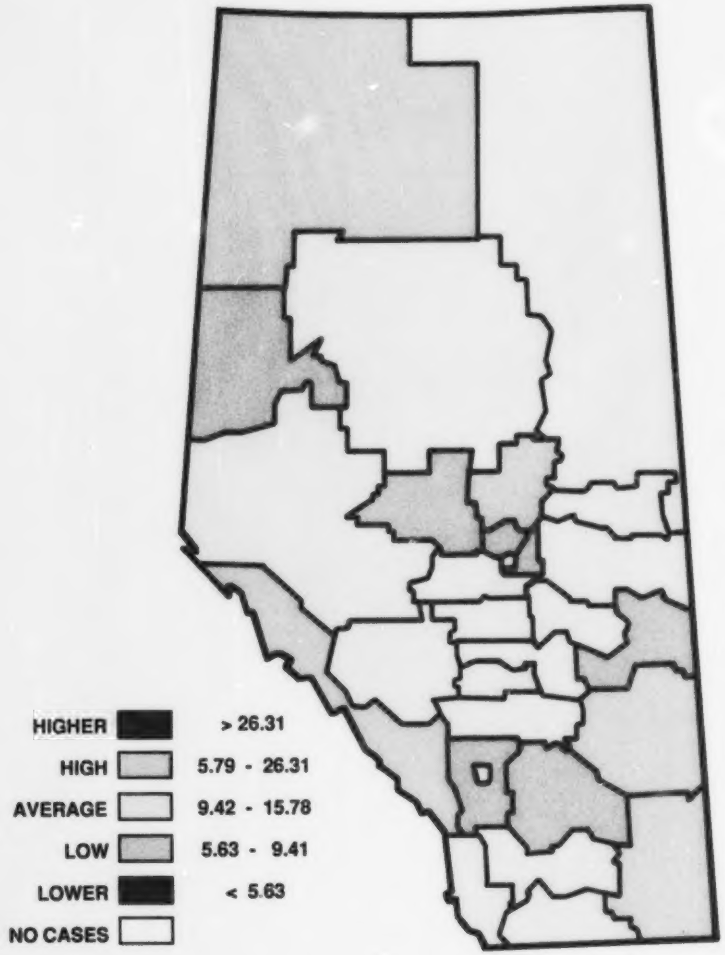
Incidence rates increased between 1964 and 1988 although relatively wide fluctuations in rates were observed from year to year. The lowest incidence of 8.5 was recorded in 1965 and the highest rate of 13.5 occurred in 1985. The trend line has a slope of 0.103 (↑). The trend line indicates that incidence increased by 25% during the period and 9.7 years were required for incidence to increase by one case per 100,000.

The provincial incidence rate for the mapped data was 12.2 cases per 100,000. On the map, no areas had higher incidence and 5 areas were high. Lower incidence was observed in no areas and 7 areas were low.





## FEMALES


HIGHER > 26.31
HIGH 5.79 - 26.31
AVERAGE 9.42 - 15.78
LOW 5.63 - 9.41
LOWER < 5.63
NO CASES

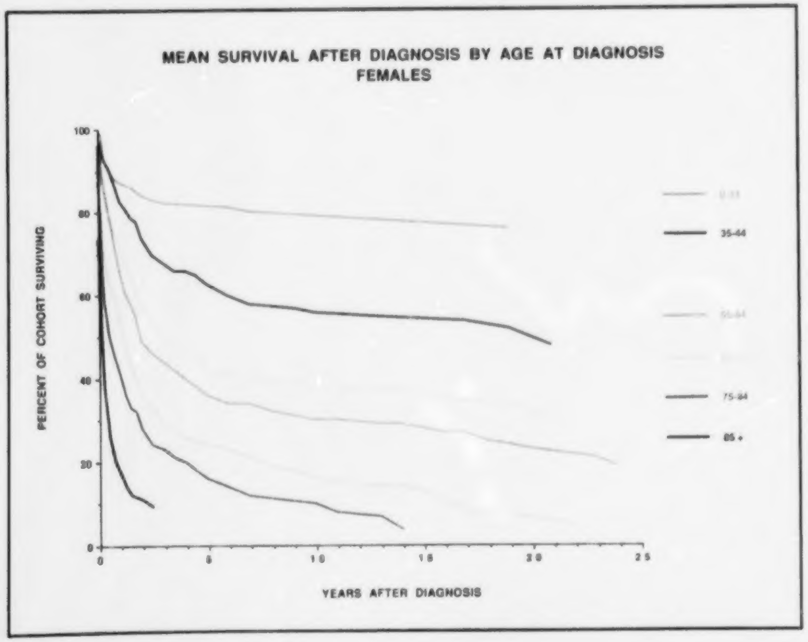
# OVARY, FALLOPIAN TUBE

The survival experience of females diagnosed with cancer of the ovary or fallopian tube is shown and median survival times are tabulated for all except the youngest age group who had 76% of the sample survive through the follow-up period.

The survival curves are characterized by a rapid decline followed by a relatively gentle slope. Median survival was 20.8 years for females aged 35 to 44 and this was 50% of their anticipated life expectancy. All other age groups had median survival times less than 4 years, reaching a minimum of just 4 months for the oldest females. Females aged 45 to 54 years lived on average just 11% of their anticipated life expectancy and this proportion reached a minimum of 4% in the oldest females.

LIFE EXPECTANCY AFTER DIAGNOSIS

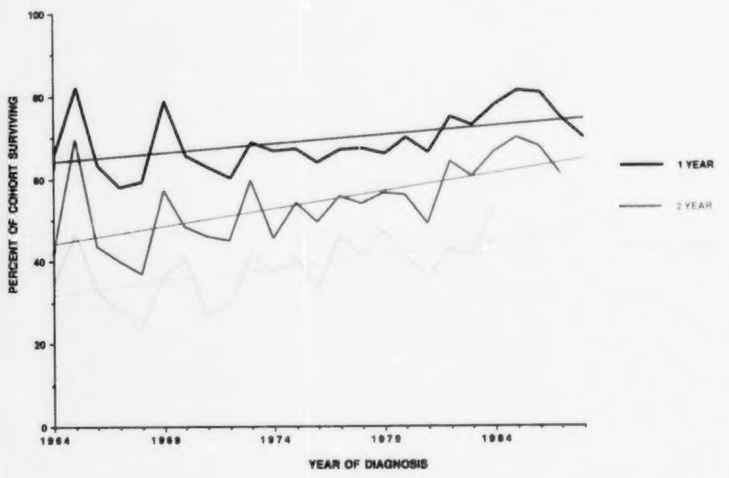
| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| 0-34 | 250 | -- | 63.9 | -- | -- |
| 35-44 | 302 | 20.8 | 41.7 | 19.9 | 50% |
| 45-54 | 570 | 3.7 | 32.4 | 28.7 | 11% |
| 55-64 | 659 | 2.4 | 23.7 | 21.3 | 10% |
| 65-74 | 549 | 1.4 | 15.8 | 14.4 | 9% |
| 75-84 | 253 | 0.8 | 9.1 | 8.3 | 9% |
| 85+ | 65 | 0.3 | 6.0 | 5.7 | 4% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES

Compared to all other female site groups, these one, two, and five year survival rates ranked in the middle of the range. Annual variation in the rates was relatively large despite a very large number of cases each year. The average number of females diagnosed with this cancer was 106 per year and the annual number of cases was never lower than 56.

The slopes of the female trend lines are: one year = 0.410 (↑), two year = 0.850 (↑) and five year = 0.628 (↑). According to the trend lines, one year survival rates began the interval at 64.0% and increased to 73.8% in 1988. Two year survival rates (trend line) increased from 44.1% in 1964 to 64.5% in 1988. On average, two year rates were 76% of one year rates. Five year survival rates (trend line) began the interval at 31.6% and increased to 46.7% in 1988. They averaged 55% of one year survival rates.

1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS



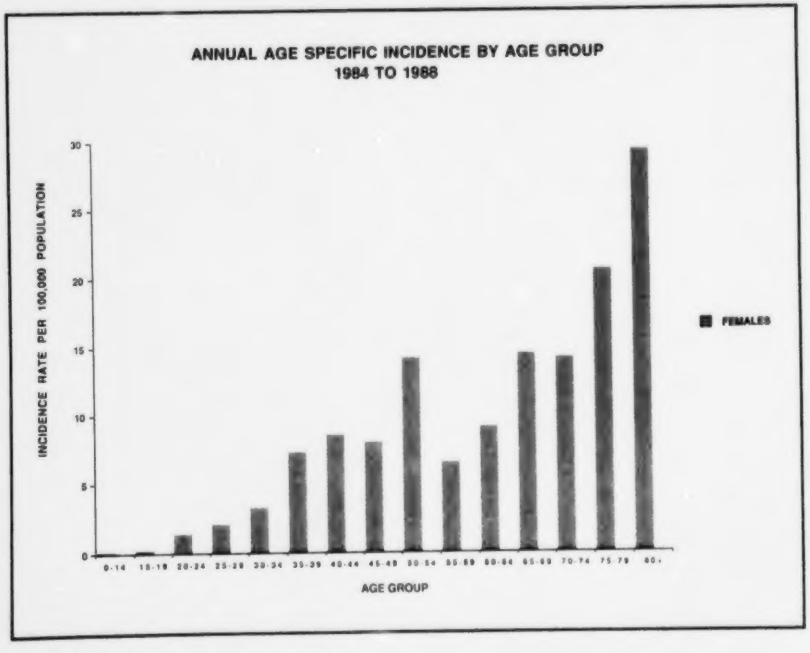
# OTHER FEMALE GENITOURINARY ORGANS

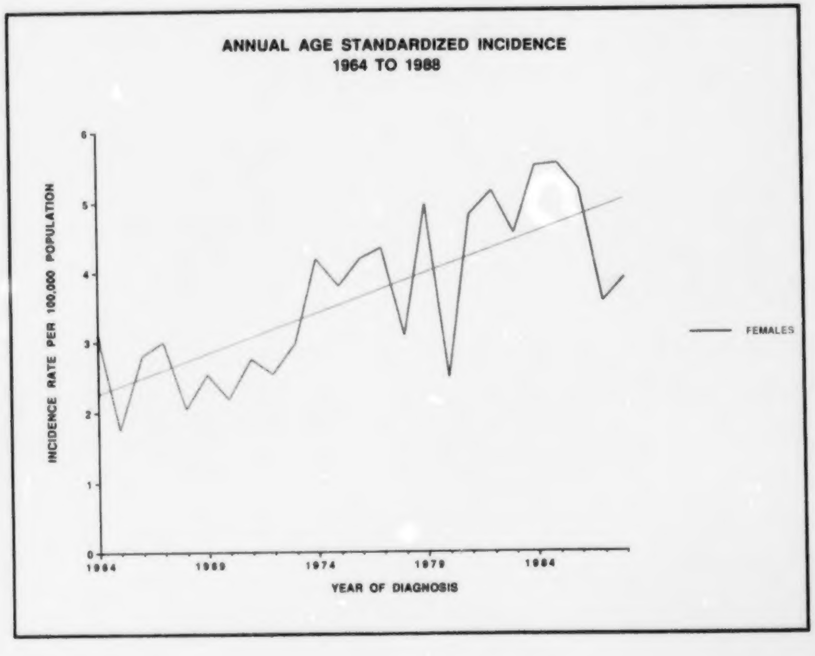
This composite category of other female genitourinary organs includes uterus (unspecified), placenta and other and unspecified female genital organs. It includes in situ cancers except for in situ cancer of the cervix. Compared to other cancer sites, this category of cancers occurred less frequently.

Cases were recorded in all age groups and incidence in 20 to 24 year olds was 1.4 cases per 100,000. A high rate of 14.2 cases per 100,000 was observed in 50 to 54 year olds and females over 80 years experienced the highest incidence of 29.2.

Incidence rates increased since 1964 but dramatic fluctuations in rates were observed which are due in part to small numbers of cases. The lowest incidence of 1.8 per 100,000 occurred in 1965 and in 1988 incidence was 3.9. The trend line has a slope of 0.115 (↑). The trend line indicates that incidence increased by 122% between 1964 and 1988. To increase incidence by one case per 100,000, 8.7 years were required.

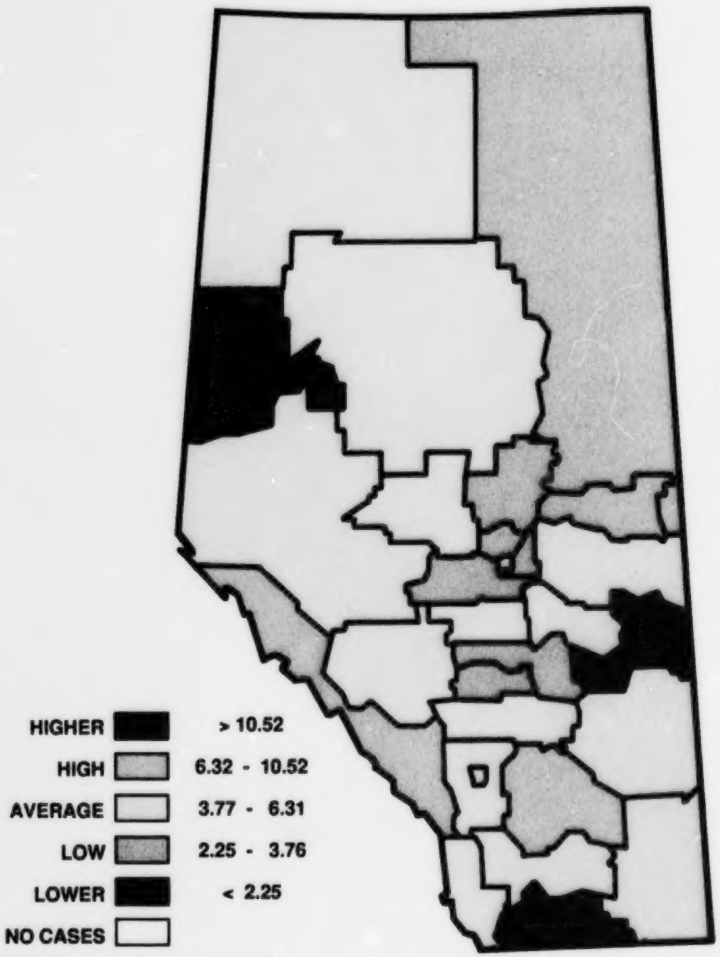
The provincial incidence rate for the mapped data was 4.9 cases per 100,000. On the map, no areas had higher incidence and 3 areas were high. Lower incidence was observed in 3 areas and 7 areas were low.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1984 TO 1988


ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

# ICD-9 CODES 179, 181, 184

## FEMALES


HIGHER > 10.52
HIGH 6.32 - 10.52
AVERAGE 3.77 - 6.31
LOW 2.25 - 3.76
LOWER < 2.25
NO CASES

# OTHER FEMALE GENITOURINARY ORGANS

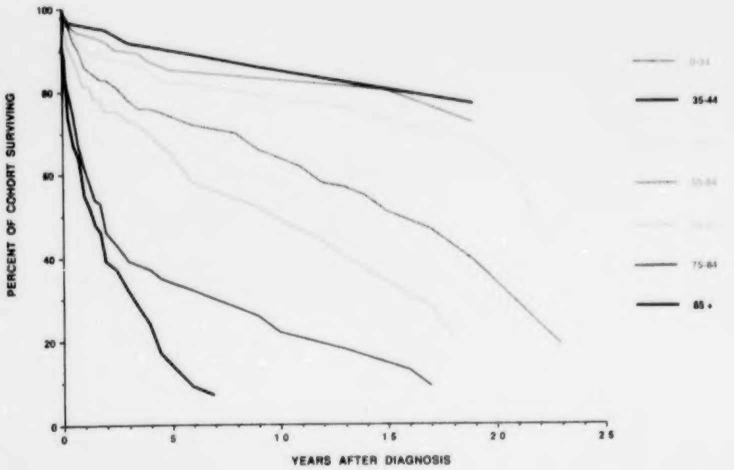
The survival experience of females diagnosed with other cancers of the genital area or urinary tract is shown and median survival times are tabulated for all but the youngest two age groups where more than half the sample survived the follow-up period.

The survival curves are distinct for different age groups and the youngest group has the best survival. Median survival for females aged 45 to 54 was 23.3 years and this was 72% of their anticipated life expectancy. The shortest median survival was 18 months for the oldest females and this was just 25% of their anticipated life expectancy.

LIFE EXPECTANCY AFTER DIAGNOSIS

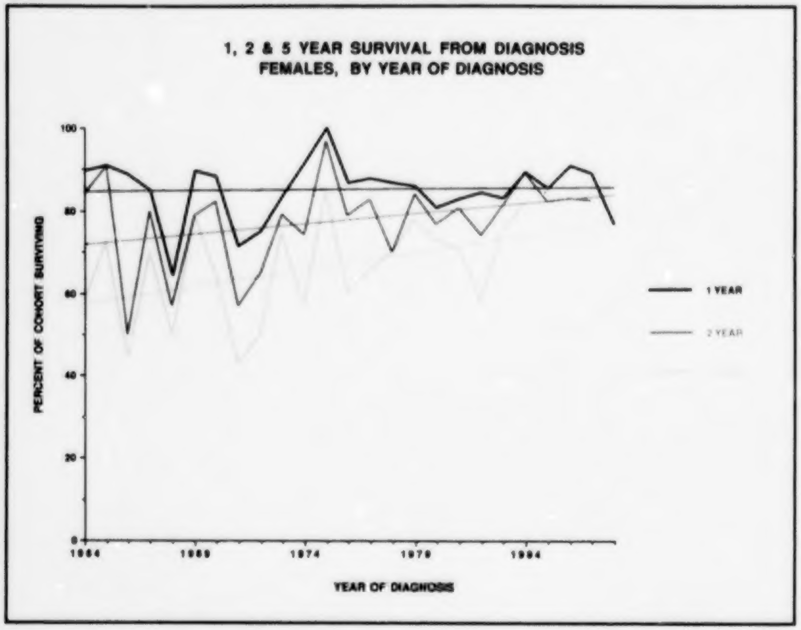
| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| 0-34 | 105 | -- | 63.9 | -- | -- |
| 35-44 | 131 | -- | 41.7 | -- | -- |
| 45-54 | 152 | 23.3 | 32.4 | 9.1 | 72% |
| 55-64 | 168 | 15.9 | 23.7 | 7.8 | 67% |
| 65-74 | 139 | 10.3 | 15.8 | 5.5 | 65% |
| 75-84 | 141 | 2.2 | 9.1 | 6.9 | 24% |
| 85+ | 59 | 1.5 | 6.0 | 4.5 | 25% |

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES



Compared to all other female site groups, these one, two, and five year survival rates ranked sixth highest. Annual variation in the rates was very large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 36 per year. The lowest number of cases in any year was 11.

The slopes of the female trend lines are: one year = 0.039 (↔), two year = 0.490 (↔) and five year = 0.831 (↑). According to the trend lines, one year survival rates began the interval at 84.6% and increased slightly to 85.6% in 1988. Two year survival rates (trend line) increased from 72.0% in 1964 to 83.7% in 1988. On average, two year rates were 91% of one year rates. Five year survival rates (trend line) began the interval at 57.5% and increased to 77.5% in 1988. They averaged 77% of one year survival rates.



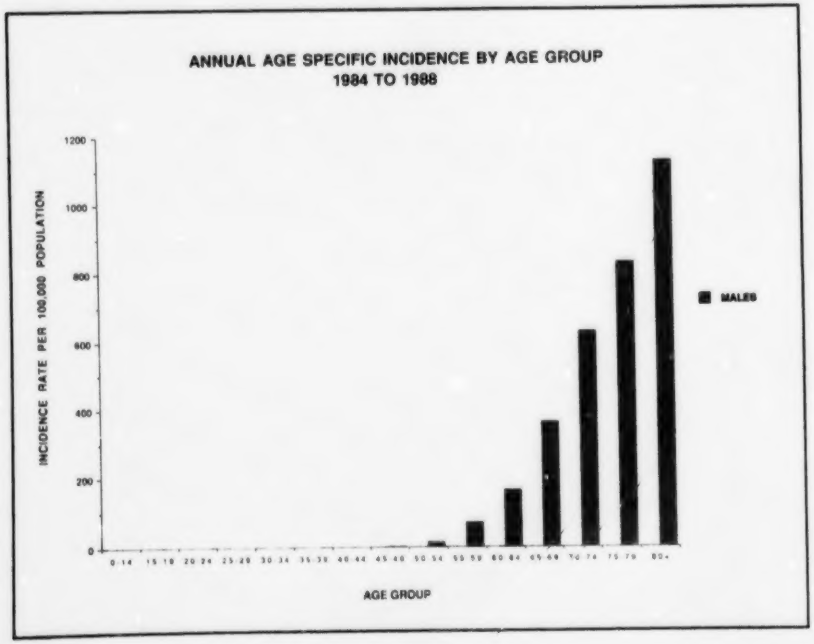
1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS

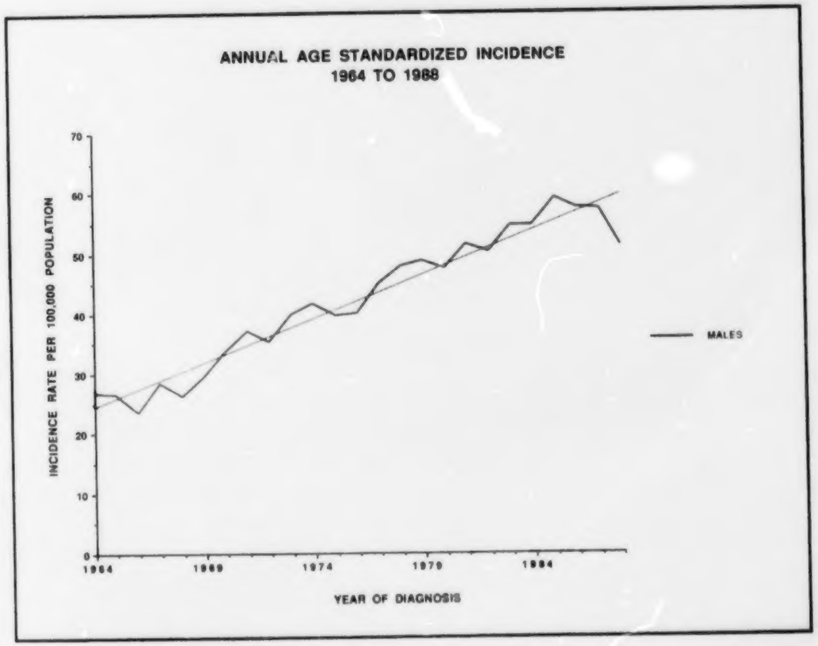
# PROSTATE

When compared to all other cancer site groups, cancer of the prostate was the second most frequently occurring cancer in males even though its incidence in males younger than 45 years was almost nil. In the 45 to 49 age group, the incidence rate was 4.5 cases per 100,000 after which incidence increased by more than 100% through the next four age categories. Incidence rates continued to climb to the oldest age group which had an incidence rate of 1,131.6 per 100,000.

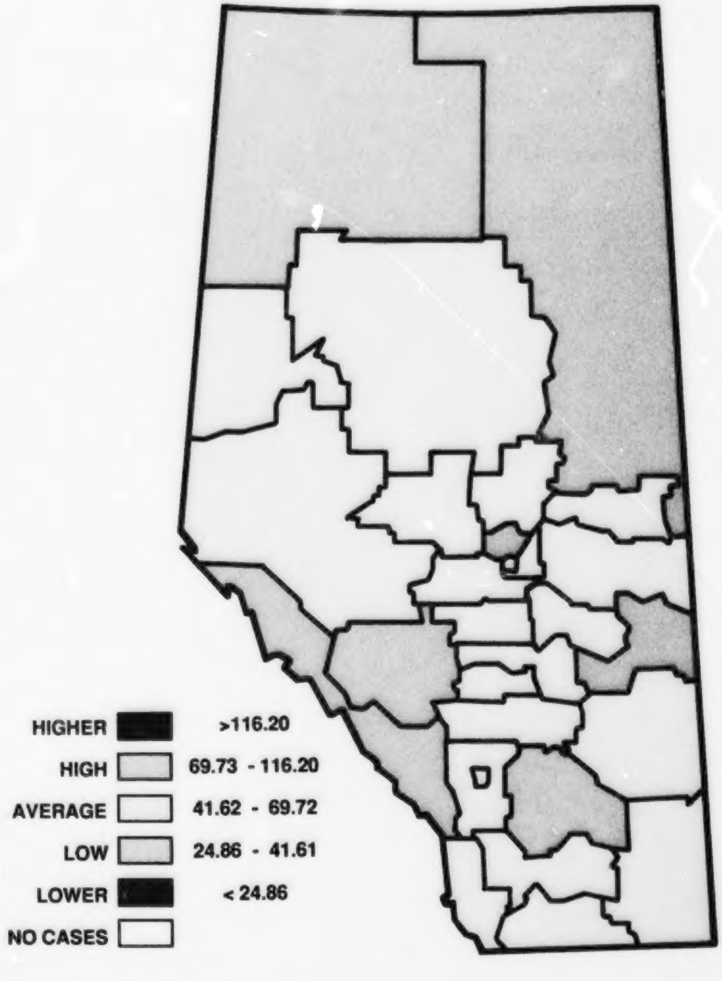
Incidence rates increased steadily between 1964 and 1988. The lowest rate of 23.5 cases per 100,000 occurred in 1966 and the highest incidence of 59.0 was observed in 1985. The trend line has a slope of 1.464 (↑). The trend line indicates that incidence increased by 144% over the time period and that incidence increased by one case per 100,000 every 0.7 years.

The provincial incidence rate for the mapped data was 54.0 cases per 100,000. On the map, no areas had higher incidence and 2 areas were high. Lower incidence was observed in no areas and 5 areas were low.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1984 TO 1988


ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

## MALES


HIGHER >116.20
HIGH 69.73 - 116.20
AVERAGE 41.62 - 69.72
LOW 24.86 - 41.61
LOWER < 24.86
NO CASES
D

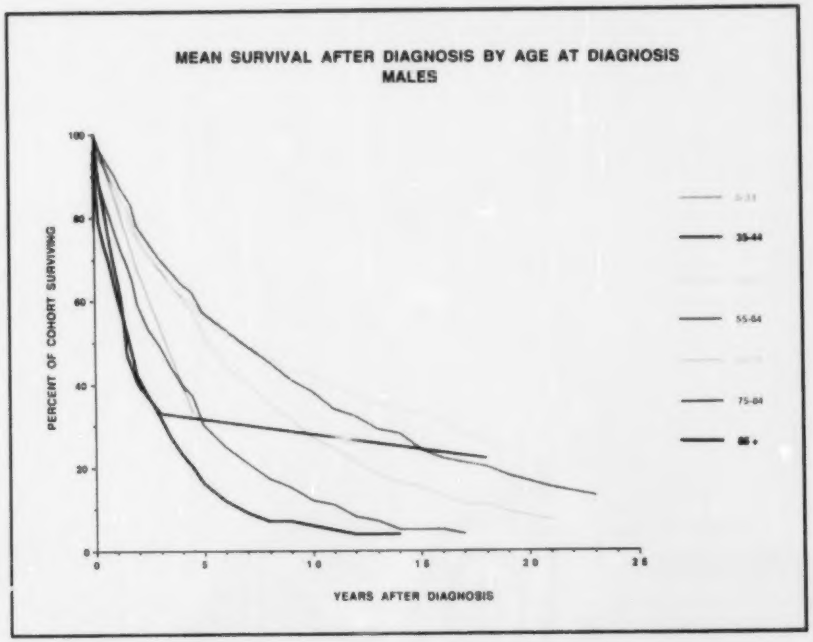
# PROSTATE

The survival experience of males diagnosed with cancer of the prostate is shown and median survival times are tabulated.

The survival curves do not drop as steeply in the years immediately after diagnosis as do the curves for some other cancer sites. The survival experience of 35 to 44 year olds closely followed that of the oldest age group and 35 to 44 year olds experienced the shortest median survival of just 19 months. The impact of prostate cancer was worst on younger males who experienced a median survival period that was less than 10% of their anticipated life expectancy.

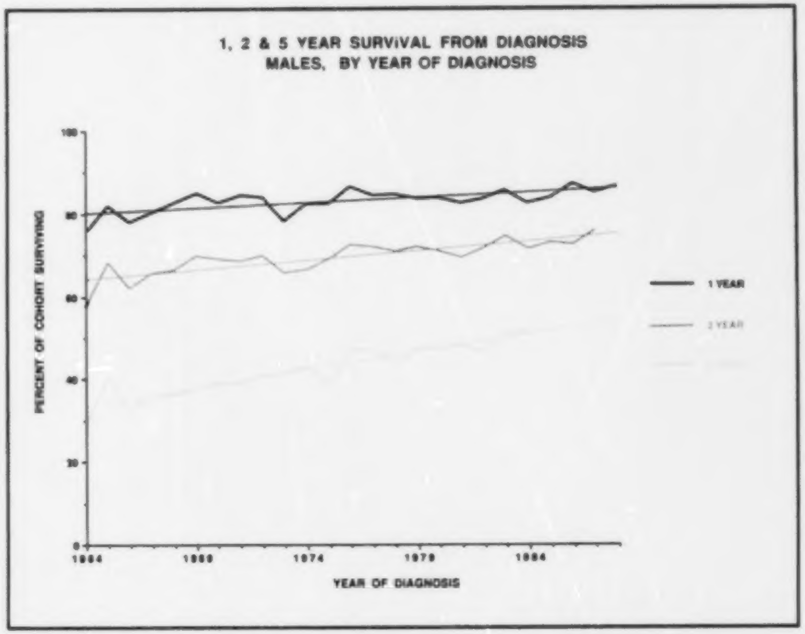
LIFE EXPECTANCY AFTER DIAGNOSIS

|  | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| 0-34 | 3 | 4.5 | 57.7 | 53.2 | 8% |
| 35-44 | 15 | 1.6 | 36.6 | 35.0 | 4% |
| 45-54 | 185 | 7.2 | 27.3 | 20.1 | 26% |
| 55-64 | 1556 | 7.6 | 19.2 | 11.6 | 39% |
| 65-74 | 3851 | 6.0 | 12.3 | 6.3 | 49% |
| 75-84 | 3731 | 3.3 | 7.2 | 3.9 | 46% |
| 85+ | 1236 | 1.8 | 5.0 | 3.2 | 37% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

Compared to all other male site groups, these one, two, and five year survival rates ranked seventh highest. Annual variation in the rates was very small and a large number of cases each year contributed to this. The average number of males diagnosed with this cancer was 422 per year and the annual number of cases was never lower than 182.

The slopes of the male trend lines are: one year = 0.249 (†), two year = 0.452 (†) and five year = 0.895 (†). According to the trend lines, one year survival rates began the interval at 80.3% and increased to 86.3% in 1988. Two year survival rates (trend line) increased from 64.1% in 1964 to 75.0% in 1988. On average, two year rates were 84% of one year rates. Five year survival rates (trend line) began the interval at 33.0% and increased to 54.4% in 1988. They averaged 52% of one year survival rates.


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

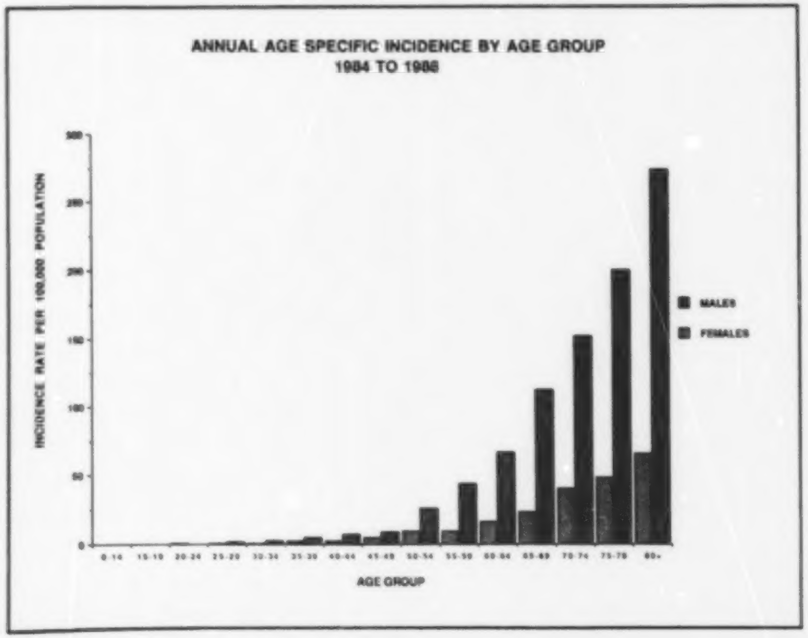
# BLADDER

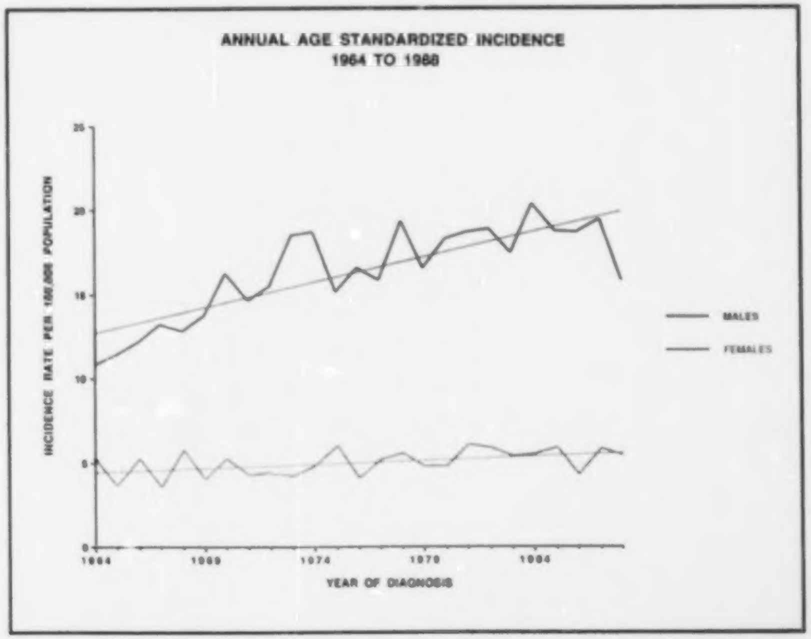
Compared to all other sites, bladder cancer occurred relatively less frequently in females, but it ranked sixth for males. Male incidence rates exceeded female rates in all age groups and in ages above 55 years the ratio of male incidence to female incidence was 4 or greater. Female incidence was below 1.0 per 100,000 in the five youngest age categories and increased across all subsequent age groups to reach a maximum incidence of 67.3 in females older than 80 years. Male incidence was less than 1.0 in the three youngest age categories. The oldest age group experienced an incidence rate of 276.8.

Incidence rates increased slightly for females and more for males between 1964 and 1988. Female incidence was lowest at 3.5 in 1967 and highest at 6.1 in 1981. The female trend line has a slope of 0.049 (†) and indicates a 26% increase in incidence over the interval. 20.6 years were required to increase incidence by one case per 100,000.

Male incidence was lowest at 10.8 in 1964 and achieved a maximum of 20.3 in 1984. The trend line has a slope of 0.303 (†) and indicates an increase in incidence of 58% over the interval. 3.3 years were required to increase incidence by one case per 100,000. Taken from the trend line, the ratio of male incidence to female incidence was 2.9 in 1964 and 3.6 in 1988.

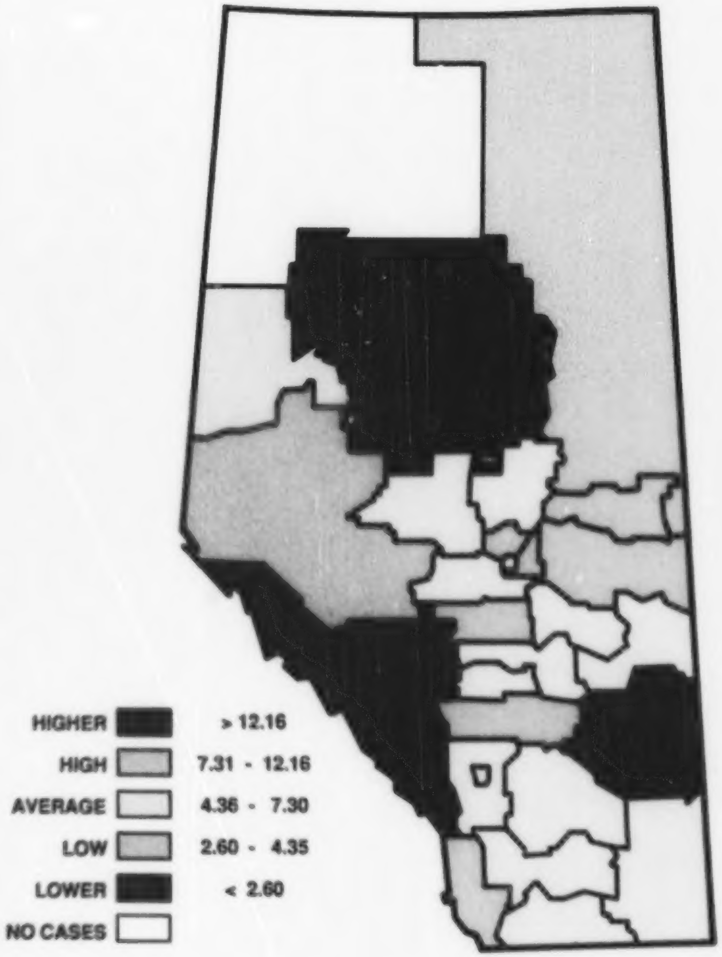
The provincial incidence rates for the mapped data were 5.7 per 100,000 for females and 17.4 for males. On the map of female rates, 1 area had higher incidence and 2 areas were high. Lower incidence was observed in 3 areas and 7 areas were low. No cases were recorded in 1 area. The map of male rates shows no areas with higher incidence and 2 classed as high. Lower incidence was observed in no areas and 12 areas were low. Mapped area 7 was above average on both maps while mapped areas 14, 16, 17, 21 and 26 were below average for both females and males.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1984 TO 1988


ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

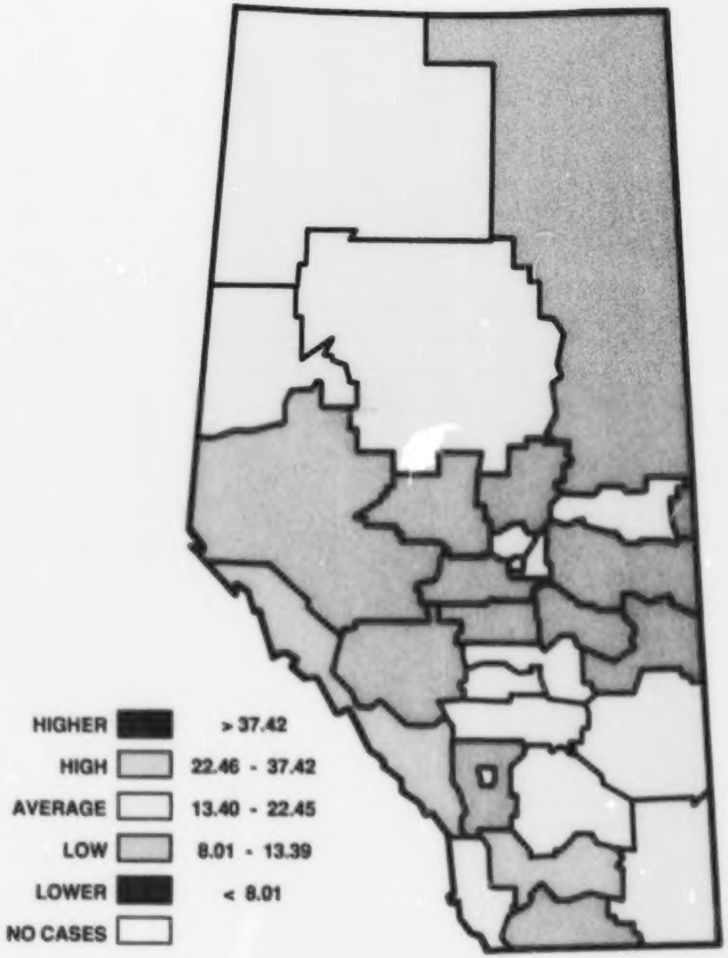
# ICD-9 CODES 188

FEMALES



HIGHER ▇ > 12.16
HIGH ▨ 7.31 - 12.16
AVERAGE ☐ 4.36 - 7.30
LOW ▨ 2.60 - 4.35
LOWER ▇ < 2.60
NO CASES ☐

MALES



HIGHER ▇ > 37.42
HIGH ▨ 22.46 - 37.42
AVERAGE ☐ 13.40 - 22.45
LOW ▨ 8.01 - 13.39
LOWER ▇ < 8.01
NO CASES ☐

# BLADDER

The survival experience of persons diagnosed with cancer of the bladder is shown. Median survival times are tabulated for all age groups except those where more than half the sample survived the follow-up period.

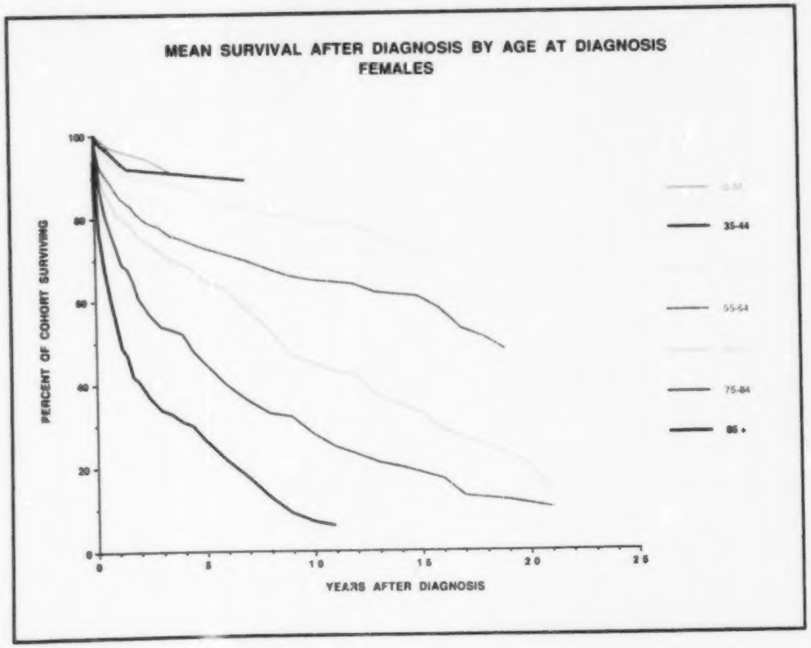
The survival curves of different age groups were distinct and the protective benefit of young age was shown. Females aged 55 to 64 experienced a median survival of 19.2 years and this was 81% of their anticipated life expectancy. The oldest females had a median survival of 17 months which was 24% of their anticipated survival duration.

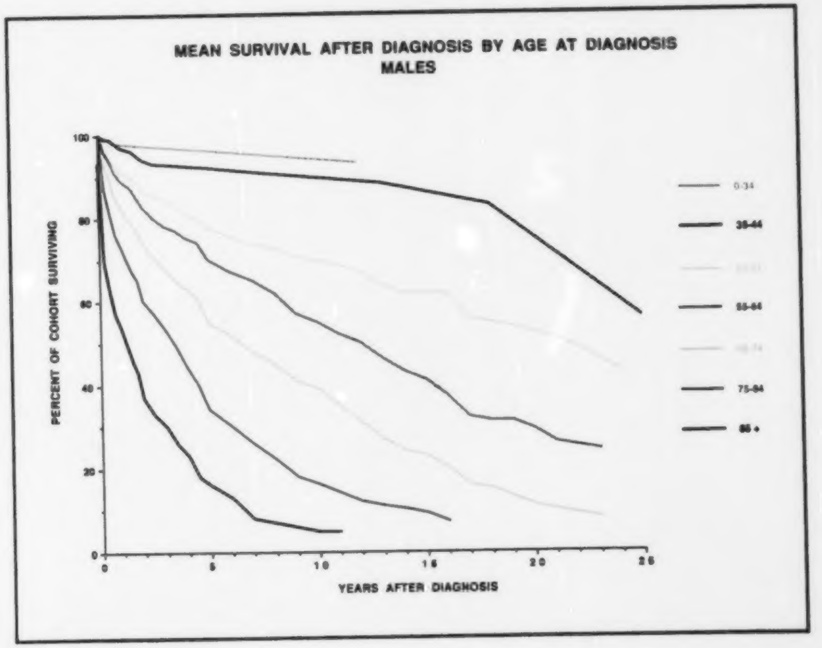
Males aged 45 to 54 had a median survival of 22 years and this was 81% of their anticipated life expectancy. The oldest males had a median survival time of 18 months which was 30% of their anticipated survival duration.

Female survival was slightly better than male survival and the difference was greatest amongst 55 to 64 year olds where the median survival was 81% of the expected survival in females and just 65% in males.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 39 | -- | 63.9 | -- | -- |
| 35-44 | 60 | -- | 41.7 | -- | -- |
| 45-54 | 134 | -- | 32.4 | -- | -- |
| 55-64 | 226 | 19.2 | 23.7 | 4.5 | 81% |
| 65-74 | 310 | 9.6 | 15.8 | 6.2 | 61% |
| 75-84 | 311 | 4.8 | 9.1 | 4.3 | 53% |
| 85+ | 109 | 1.4 | 6.0 | 4.6 | 24% |
| MALES | | | | | |
| 0-34 | 85 | -- | 57.7 | -- | -- |
| 35-44 | 162 | -- | 36.6 | -- | -- |
| 45-54 | 388 | 22.0 | 27.3 | 5.3 | 81% |
| 55-64 | 887 | 12.5 | 19.2 | 6.7 | 65% |
| 65-74 | 1212 | 7.3 | 12.3 | 5.0 | 59% |
| 75-84 | 935 | 3.8 | 7.2 | 3.4 | 52% |
| 85+ | 338 | 1.5 | 5.0 | 3.5 | 30% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES

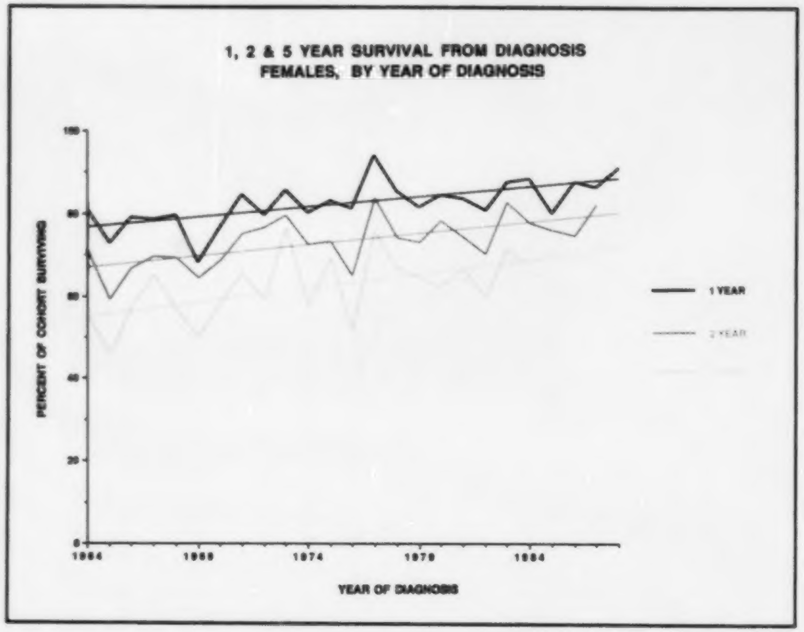

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

Compared to all other site groups, female one, two, and five year survival rates ranked ninth highest. Annual variation in the rates was relatively large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 48 per year. The lowest number of cases in any year was 22.

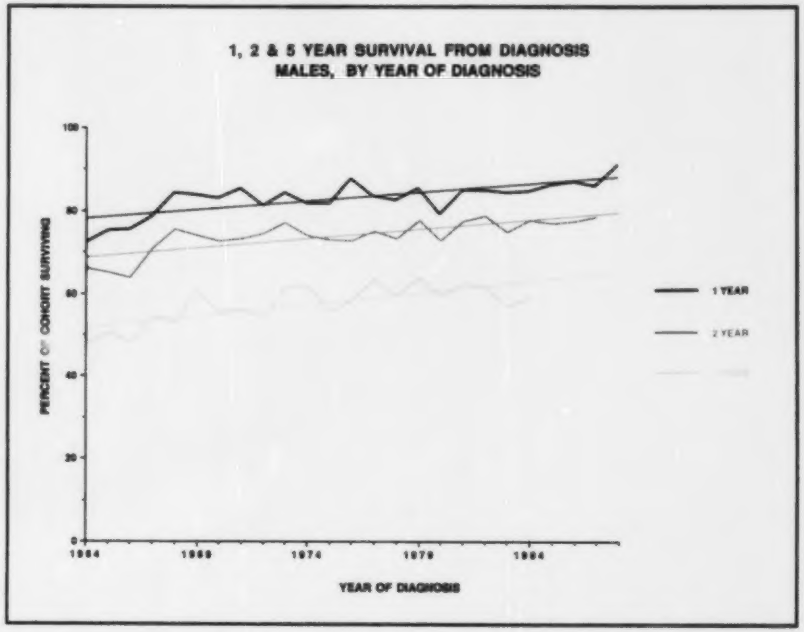
The slopes of the female trend lines are: one year = 0.474 (†), two year = 0.534 (†) and five year = 0.692 (†). According to the trend lines, one year survival rates began the interval at 76.5% and increased to 87.9% in 1988. Two year survival rates (trend line) increased from 67.0% in 1964 to 79.8% in 1988. On average, two year rates were 89% of one year rates. Five year survival rates (trend line) began the interval at 55.0% and increased to 71.6% in 1988. They averaged 75% of one year survival rates.

For males, the one, two and five year survival rates ranked fifth highest. Annual variation in the rates was very small and a large number of cases each year contributed to this. The average number of males diagnosed with this cancer was 160 per year and the annual number of cases was never lower than 80.

The slopes of the male trend lines are: one year = 0.413 (†), two year = 0.436 (†) and five year = 0.555 (†). According to the trend lines, one year survival rates began the interval at 78.0% and increased to 88.0% in 1988. Two year survival rates (trend line) increased from 68.8% in 1964 to 79.3% in 1988. On average, two year rates were 91% of one year rates. Five year survival rates (trend line) began the interval at 51.7% and increased to 65.0% in 1988. They averaged 71% of one year survival rates.



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

# KIDNEY

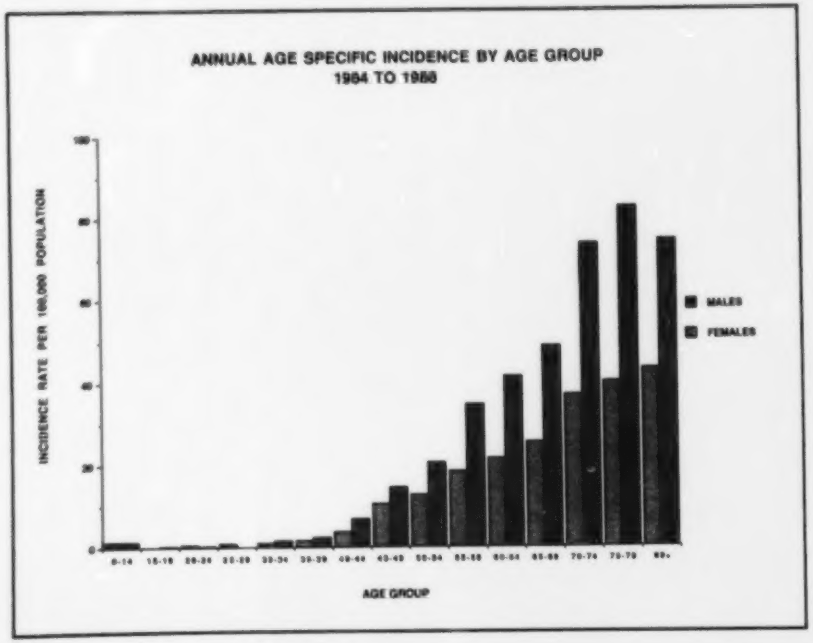
Cancer of the kidney occurred less frequently than many other cancer sites but in the youngest age category, it was the third most frequent tumour. For females, incidence amongst 0 to 14 year olds was 1.2 per 100,000. Incidence rates remained lower than this value to the 35 to 39 age group after which increases occurred through all other age categories to reach a maximum of 42.8 in females 80 years or older.

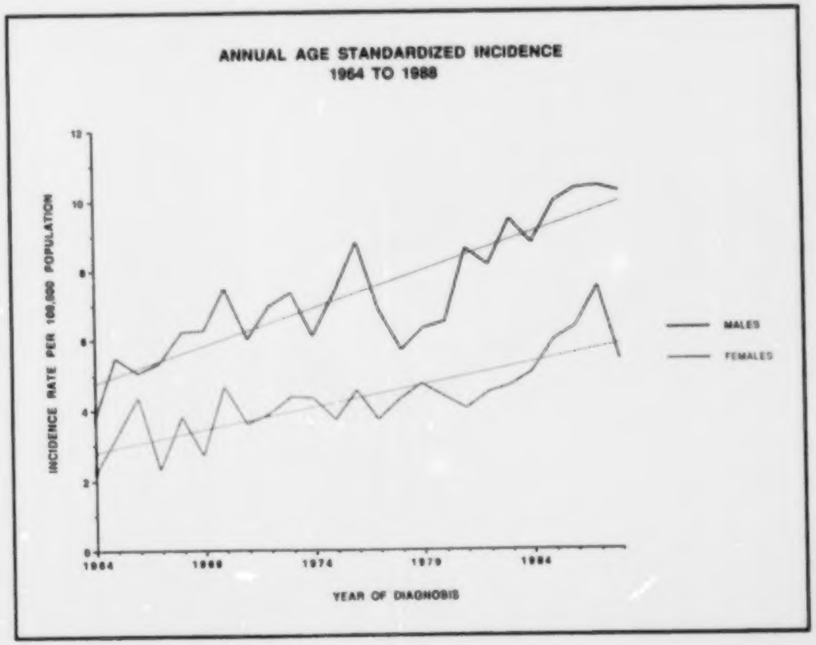
For males in the youngest age category, incidence matches the female rate. Incidence remained low in the next three age categories, after which a rate of 1.5 was experienced in 30 to 34 year old males. Incidence increased steadily to reach a maximum value of 82.8 in 75 to 79 year olds.

Incidence rates increased between 1964 and 1988. Female incidence was lowest at 2.1 in 1964 and achieved a maximum of 7.1 in 1987. The trend line has a slope of 0.129 (†) and indicates that incidence increased by 112% during the 25 years. 7.8 years were required for incidence to increase by one case per 100,000.

Male incidence was lowest at 3.7 in 1964 and reached a maximum value of 10.4 in 1987. The slope of the trend line is 0.215 (†). The trend indicates that incidence increased by 108% over the interval and 4.7 years were required for incidence to increase by one case. The ratio of male incidence to female incidence taken from the trend line was 1.7 throughout the interval.

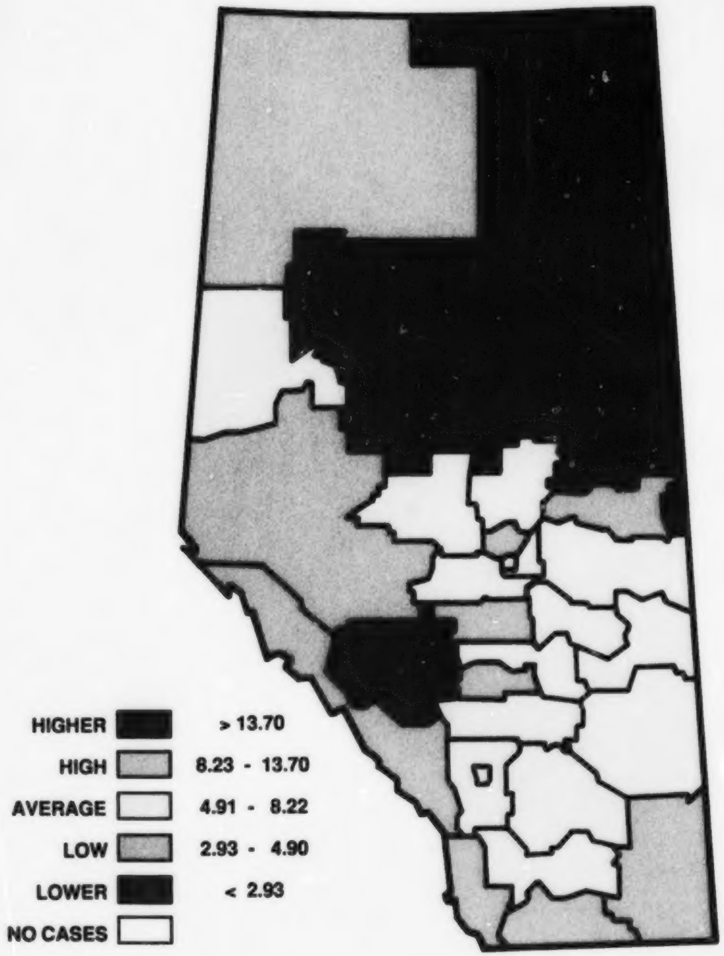
The provincial incidence rates for the mapped data were 6.4 per 100,000 for females and 9.5 for males. On the map of female rates, 1 area had higher incidence and 2 areas were high. Lower incidence was observed in 2 areas and 8 areas were low. The map of male rates shows 5 areas with high incidence. Lower incidence was observed in 1 area and 4 areas were low. No cases were recorded in 1 area. Mapped area 26 was above average on both maps while area 16 was below average for both genders.



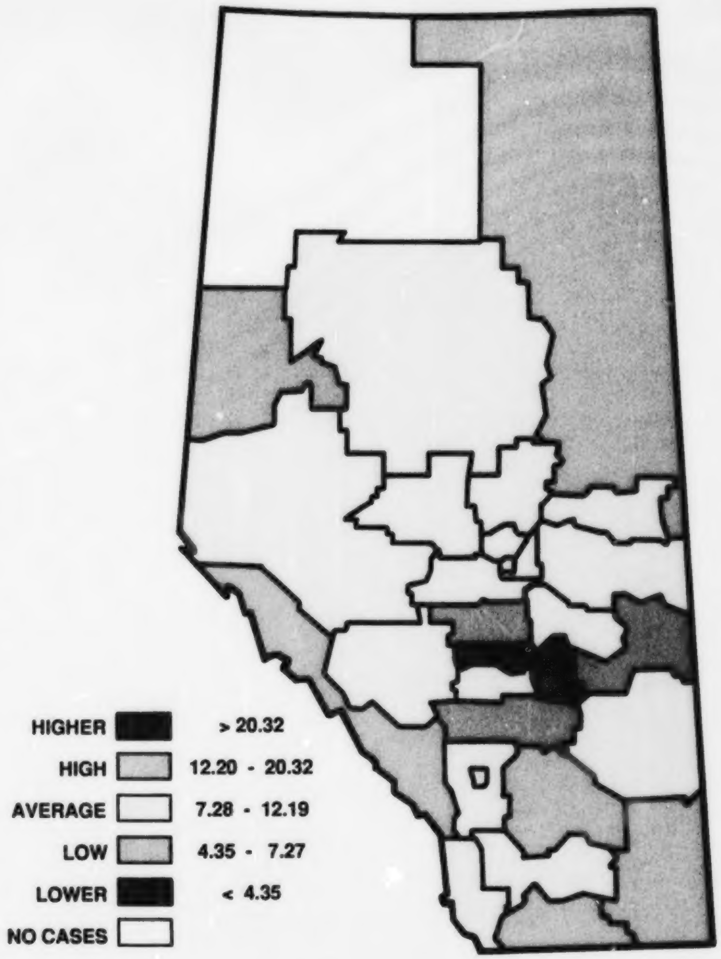


# ICD-9 CODES 189

## FEMALES


HIGHER ▆ > 13.70
HIGH ▒ 8.23 - 13.70
AVERAGE ☐ 4.91 - 8.22
LOW ▒ 2.93 - 4.90
LOWER ▆ < 2.93
NO CASES ☐
D

## MALES


HIGHER ▆ > 20.32
HIGH ▒ 12.20 - 20.32
AVERAGE ☐ 7.28 - 12.19
LOW ▒ 4.35 - 7.27
LOWER ▆ < 4.35
NO CASES ☐
D

# KIDNEY

The survival experience of persons diagnosed with cancer of the kidney is shown. Median survival times are tabulated for all age groups except those where more than half the sample survived the follow-up period.

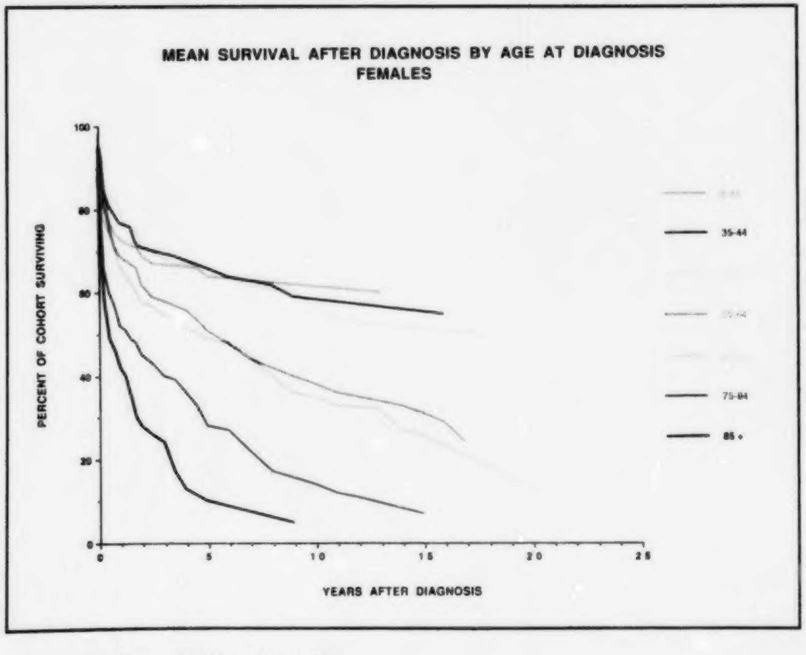
The curves demonstrate clustering of some of the age groups. Females aged 45 to 54 years old had a median survival of 18.9 years and this was 58% of their anticipated life expectancy. The oldest females had a median survival time of 8 months which was just 11% of their anticipated life expectancy.

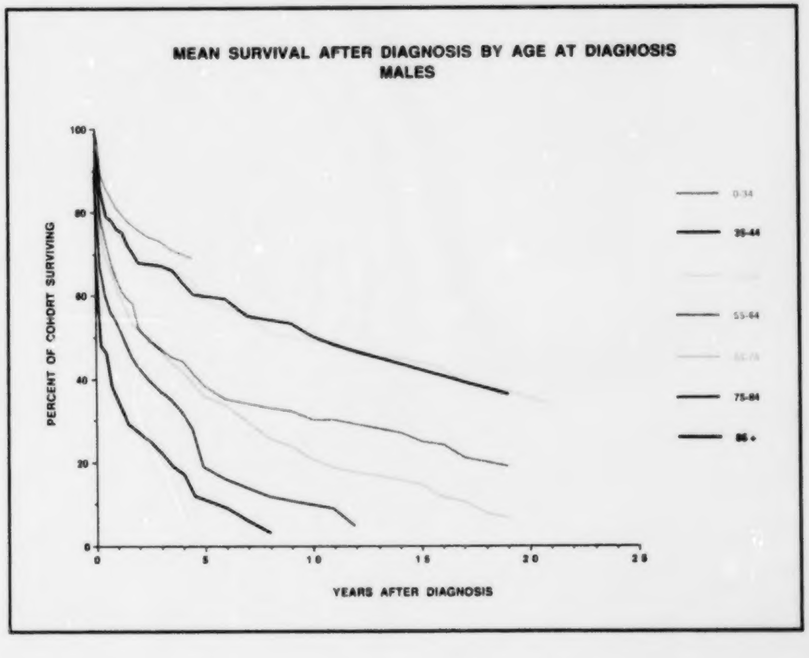
Male survival was generally worse than female survival. The median survival time for 35 to 44 year olds was 11.7 years which was 32% of their anticipated life expectancy. The oldest males had the lowest median survival time (4 months) and the lowest proportion of anticipated years of life lived (7%).

The largest difference in survival between females and males was experienced by 45 to 54 year olds where females lived 58% of their anticipated life expectancy compared to just 33% in males.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 86 | -- | 63.9 | -- | -- |
| 35-44 | 62 | -- | 41.7 | -- | -- |
| 45-54 | 153 | 18.9 | 32.4 | 13.5 | 58% |
| 55-64 | 262 | 6.1 | 23.7 | 17.6 | 26% |
| 65-74 | 260 | 5.7 | 15.8 | 10.1 | 36% |
| 75-84 | 182 | 1.5 | 9.1 | 7.6 | 16% |
| 85+ | 57 | 0.7 | 6.0 | 5.3 | 11% |
| MALES | | | | | |
| 0-34 | 83 | -- | 57.7 | -- | -- |
| 35-44 | 108 | 11.7 | 36.6 | 24.9 | 32% |
| 45-54 | 322 | 9.1 | 27.3 | 18.2 | 33% |
| 55-64 | 507 | 2.8 | 19.2 | 16.4 | 15% |
| 65-74 | 482 | 2.9 | 12.3 | 9.4 | 24% |
| 75-84 | 281 | 1.5 | 7.2 | 5.7 | 21% |
| 85+ | 63 | 0.3 | 5.0 | 4.7 | 7% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

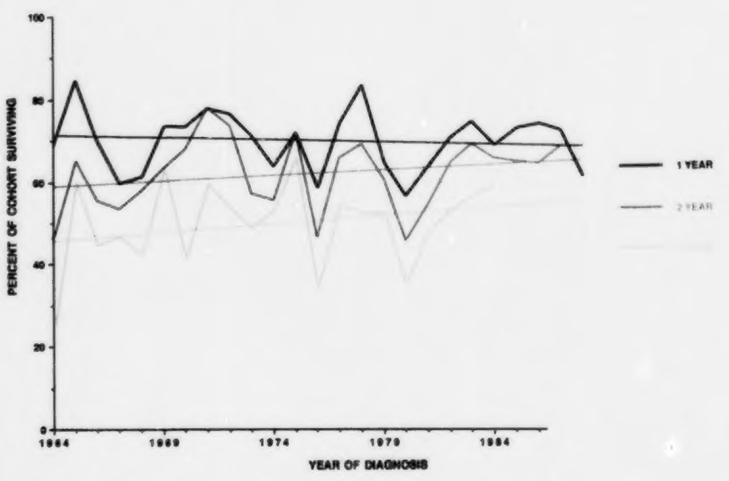
Compared to all other site groups, female one, two, and five year survival rates ranked in the middle of the range. Annual variation in the rates was relatively large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 43 per year. The lowest number of cases in any year was 13.

The slopes of the female trend lines are: one year = -0.127 (↔), two year = 0.266 (↔) and five year = 0.403 (↔). According to the trend lines, one year survival rates began the interval at 71.5% and decreased slightly to 68.5% in 1988. Two year survival rates (trend line) increased from 58.7% in 1964 to 65.1% in 1988. On average, two year rates were 88% of one year rates. Five year survival rates (trend line) began the interval at 45.7% and increased to 55.4% in 1988. They averaged 72% of one year survival rates.

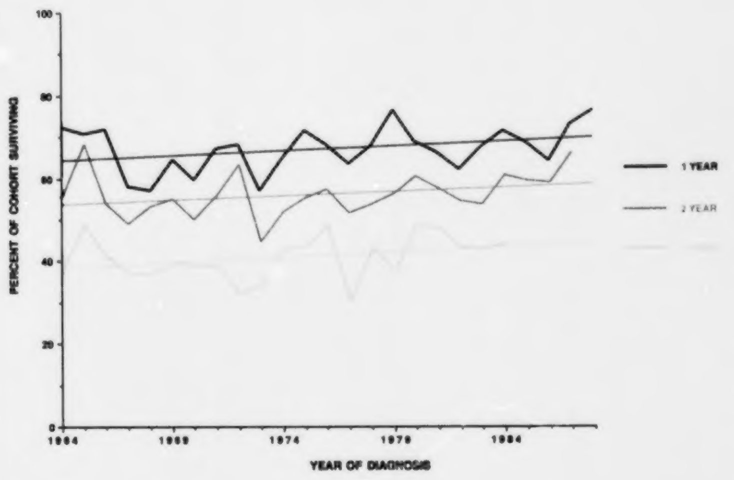
For males, the one, two, and five year survival rates ranked tenth highest. Annual variation in the rates was relatively small and a large number of cases each year contributed to this. The average number of males diagnosed with this cancer was 74 per year and the annual number of cases was never lower than 28.

The slopes of the male trend lines are: one year = 0.231 (↔), two year = 0.210 (↔) and five year = 0.256 (↔). According to the trend lines, one year survival rates began the interval at 64.4% and increased to 69.9% in 1988. Two year survival rates (trend line) increased from 53.6% in 1964 to 58.7% in 1988. On average, two year rates were 83% of one year rates. Five year survival rates (trend line) began the interval at 38.2% and increased to 44.3% in 1988. They averaged 62% of one year survival rates.

1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS



# NERVOUS SYSTEM

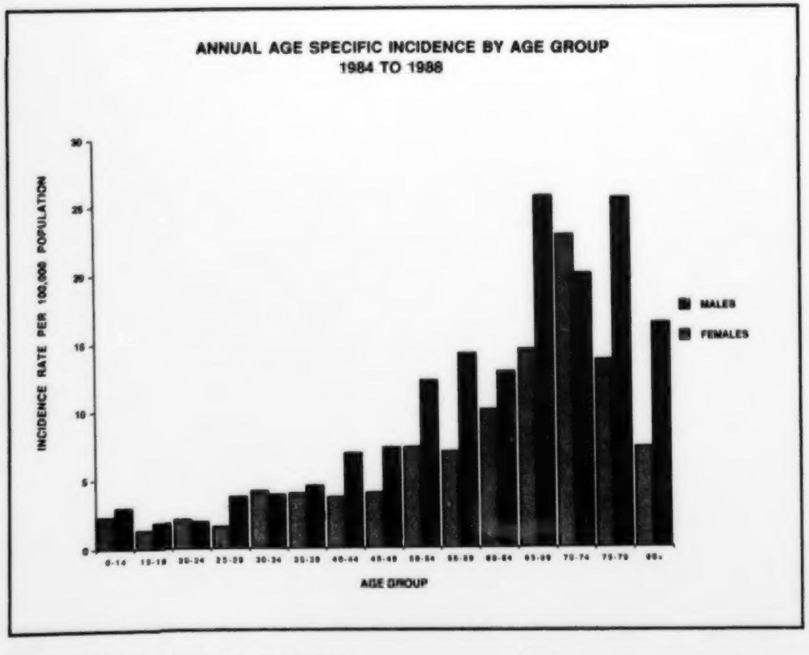
Cancer of the nervous system affected persons of all ages and represented almost 20% of cancers occurring in young people. In females, the incidence rate in 0 to 14 year olds was 2.3 per 100,000. The maximum incidence of 22.9 per 100,000 was experienced by females aged 70 to 74 years.

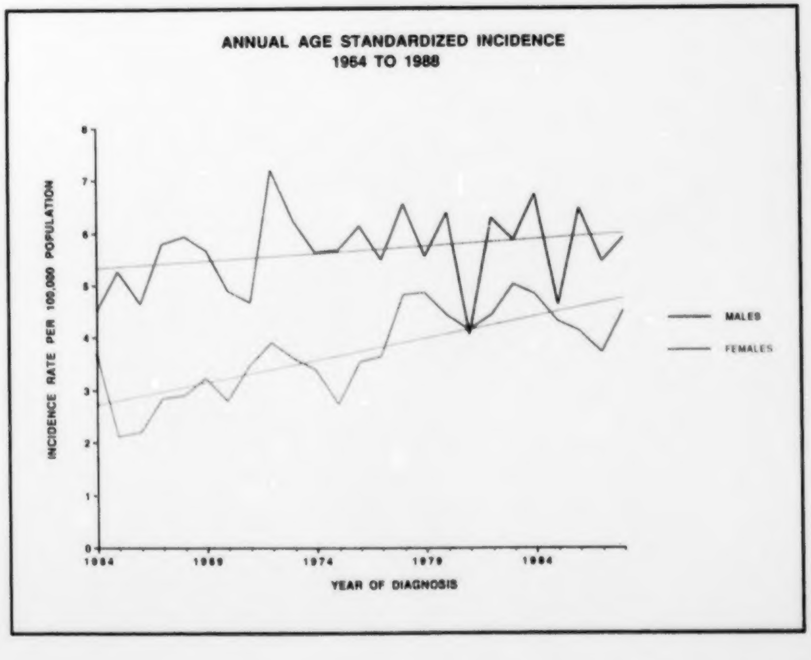
Male incidence was 3.0 per 100,000 in the youngest age category and peaked at 25.8 for 65 to 69 year olds. Male rates exceeded female rates in most age categories and often the male rate was approximately double the female rate.

Incidence rates demonstrated much annual variation between 1964 and 1988. The trend line has a slope of 0.085 (↑) and indicates that incidence increased by 76% during the interval. Incidence increased by one case every 11.7 years.

Male incidence was lowest at 4.1 in 1981 (the only year in which female incidence exceeded male incidence) and recorded the highest value of 7.2 in 1972. The slope of the trend line is 0.025 (↔). The trend line indicates that incidence increased by 11% during the interval. The ratio of male incidence to female incidence (as taken from the trend line) was 2.0 in 1964 and 1.3 in 1988.

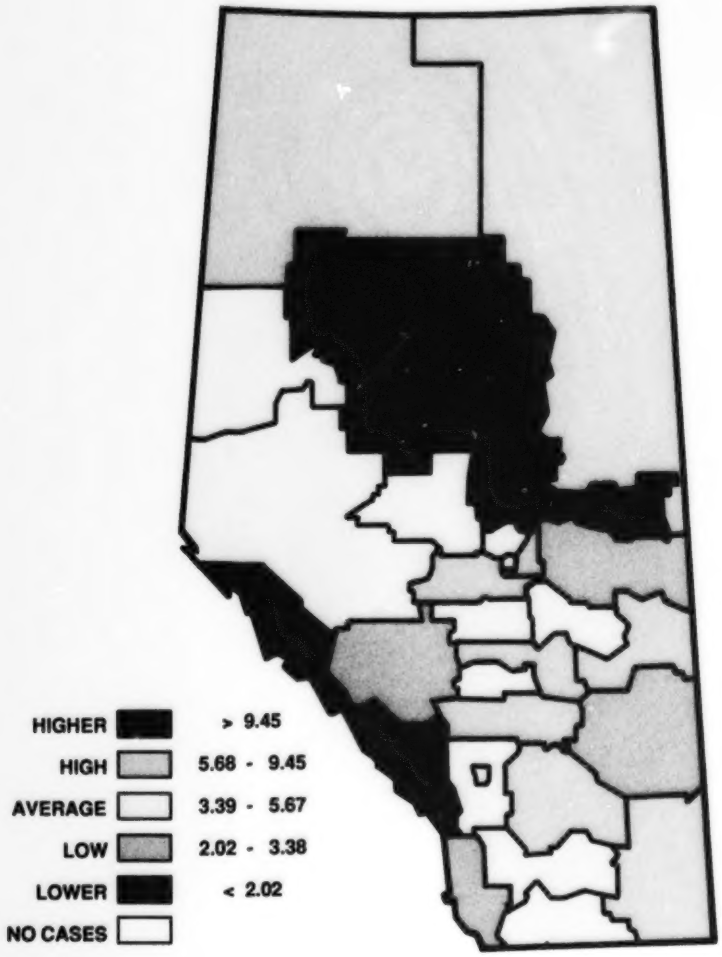
The provincial incidence rates for the mapped data were 4.4 per 100,000 for females and 6.1 for males. On the map of female rates, 1 area had higher incidence and 9 areas were high. Lower incidence was observed in 3 areas and 4 areas were low. The map of male rates shows 1 area with higher incidence and 4 classed as high. Lower incidence was observed in 3 areas and 8 areas were low. Mapped areas 1 and 29 were above average on both maps while mapped areas 3, 9, 14, 22 and 27 were below average for both females and males.



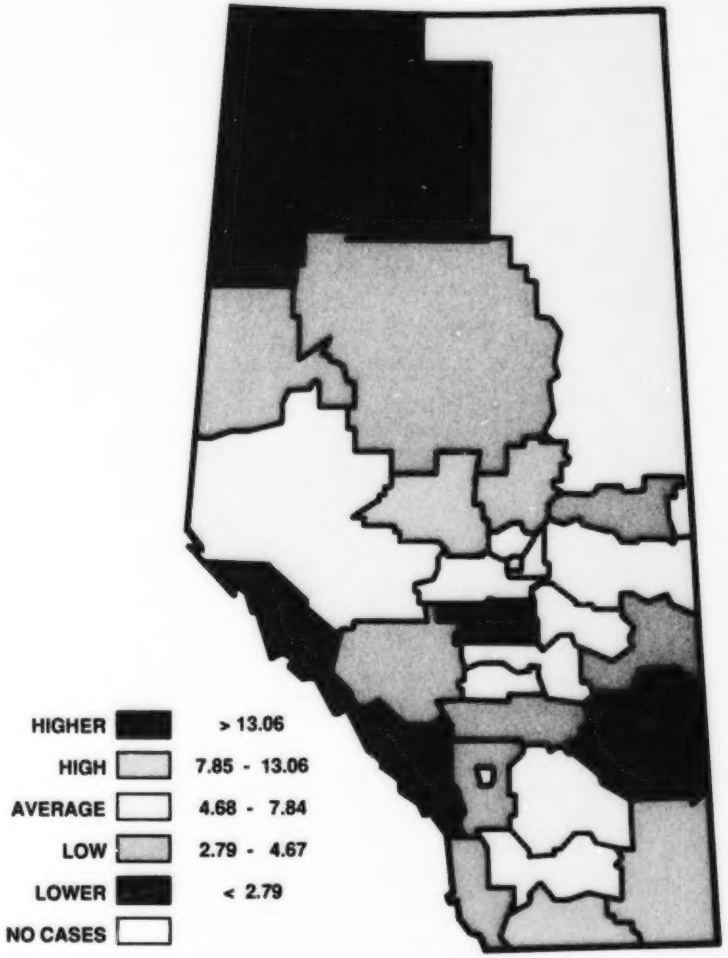


# ICD-9 CODES 191, 192

## FEMALES


HIGHER > 9.45
HIGH 5.68 - 9.45
AVERAGE 3.39 - 5.67
LOW 2.02 - 3.38
LOWER < 2.02
NO CASES

## MALES


HIGHER > 13.06
HIGH 7.85 - 13.06
AVERAGE 4.68 - 7.84
LOW 2.79 - 4.67
LOWER < 2.79
NO CASES

# NERVOUS SYSTEM

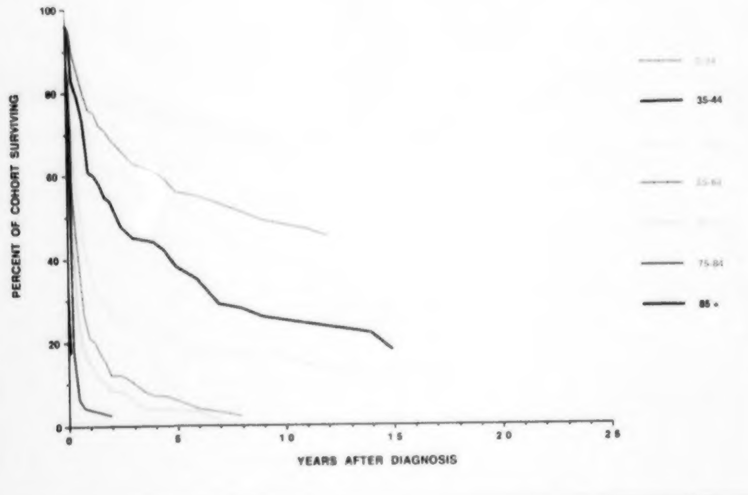
The survival experience of persons diagnosed with cancer of the nervous system is shown and median survival times are tabulated. Survival curves were very steep immediately after diagnosis for the older age groups. The youngest females had the longest median survival time of 9.3 years and this was 14% of their anticipated life expectancy. Only 1 of the 7 females in the oldest age category was alive one month after diagnosis.

Cancer of the nervous system was equally severe on males. Median survival of the youngest males was 5.3 years, just 9% of the anticipated life expectancy. Half of the 6 males in the oldest age category survived one month after diagnosis.

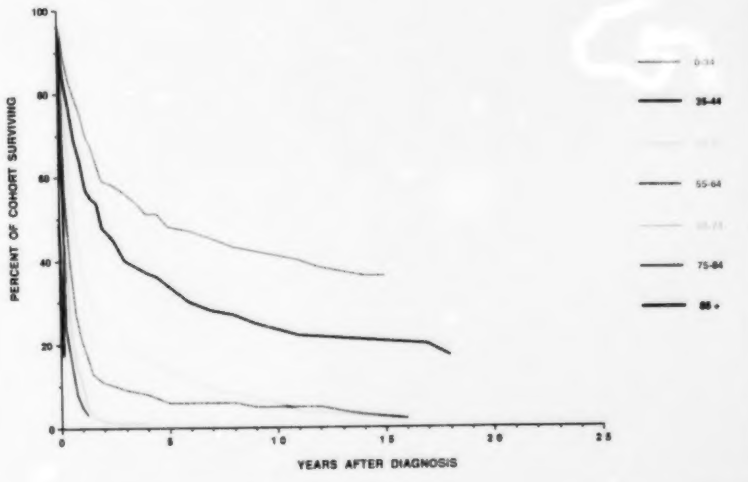
LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 291 | 9.3 | 63.9 | 54.6 | 14% |
| 35-44 | 102 | 2.8 | 41.7 | 38.9 | 7% |
| 45-54 | 135 | 0.8 | 32.4 | 31.6 | 3% |
| 55-64 | 167 | 0.6 | 23.7 | 23.1 | 2% |
| 65-74 | 150 | 0.4 | 15.8 | 15.4 | 3% |
| 75-84 | 51 | 0.3 | 9.1 | 8.8 | 3% |
| 85+ | 7 | 0.0 | 6.0 | 6.0 | 0% |
| MALES | | | | | |
| 0-34 | 425 | 5.3 | 57.7 | 52.4 | 9% |
| 35-44 | 166 | 2.3 | 36.6 | 34.3 | 6% |
| 45-54 | 223 | 0.8 | 27.3 | 26.5 | 3% |
| 55-64 | 287 | 0.6 | 19.2 | 18.6 | 3% |
| 65-74 | 213 | 0.4 | 12.3 | 11.9 | 3% |
| 75-84 | 62 | 0.3 | 7.2 | 6.9 | 3% |
| 85+ | 6 | 0.1 | 5.0 | 4.9 | 2% |

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES



MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES



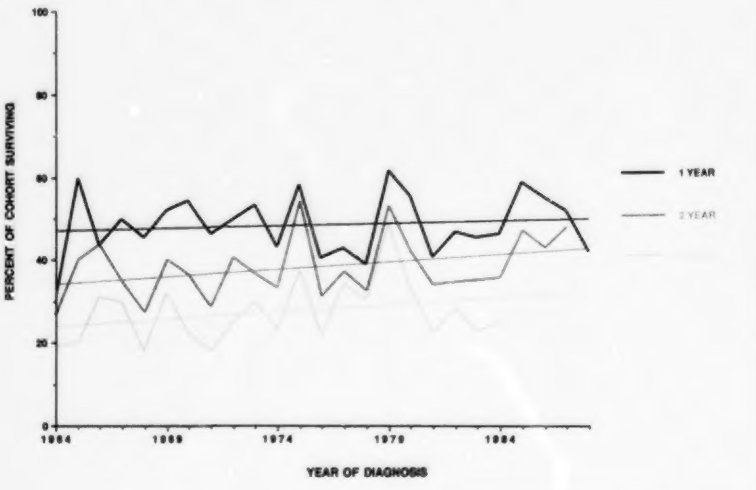
Compared to all other site groups, female one, two, and five year survival rates ranked tenth lowest. Annual variation in the rates was relatively large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 36 per year. The lowest number of cases in any year was 15.

The slopes of the female trend lines are: one year = 0.120 (↔), two year = 0.356 (↔) and five year = 0.347 (↔). According to the trend lines, one year survival rates began the interval at 47.2% and increased slightly to 50.1% in 1988. Two year survival rates (trend line) increased from 34.1% in 1964 to 42.6% in 1988. On average, two year rates were 80% of one year rates. Five year survival rates (trend line) began the interval at 23.9% and increased to 32.2% in 1988. They averaged 55% of one year survival rates.

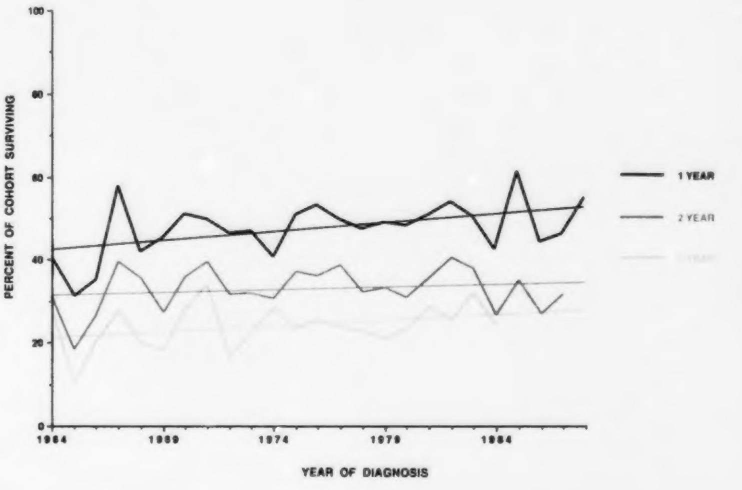
For males, the one, two, and five year survival rates ranked ninth lowest. Annual variation in the rates was relatively large despite a reasonable number of cases each year. The average number of males diagnosed with this cancer was 55 per year and the annual number of cases was never lower than 32.

The slopes of the male trend lines are: one year = 0.422 (↑), two year = 0.135 (↔) and five year = 0.274 (↔). According to the trend lines, one year survival rates began the interval at 42.7% and increased to 52.9% in 1988. Two year survival rates (trend line) increased slightly from 31.5% in 1964 to 34.7% in 1988. On average, two year rates were 68% of one year rates. Five year survival rates (trend line) began the interval at 21.5% and increased to 28.0% in 1988. They averaged 51% of one year survival rates.

1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS



# ENDOCRINE GLANDS

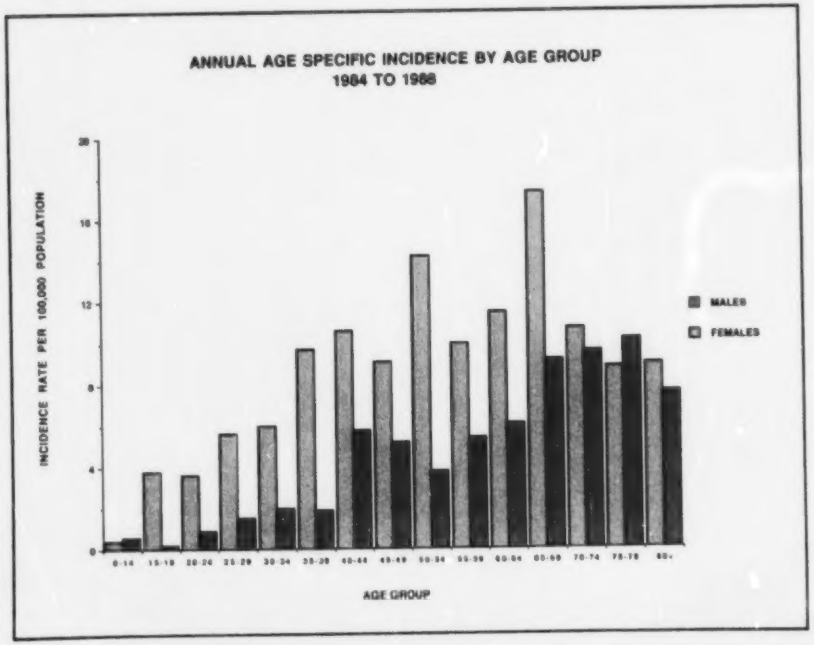
The incidence of endocrine cancer ranked low compared to other cancers except in younger age groups. Female rates exceeded male rates in almost all age categories and often the ratio of the female rate to the male rate was two or more. In the youngest age group, the incidence rate for females was 0.4 per 100,000 and it increased to 3.8 in 15 to 19 year olds. Incidence in 50 to 54 year olds was 14.2 and the highest rate of 17.5 was experienced by females aged 65 to 69 years.

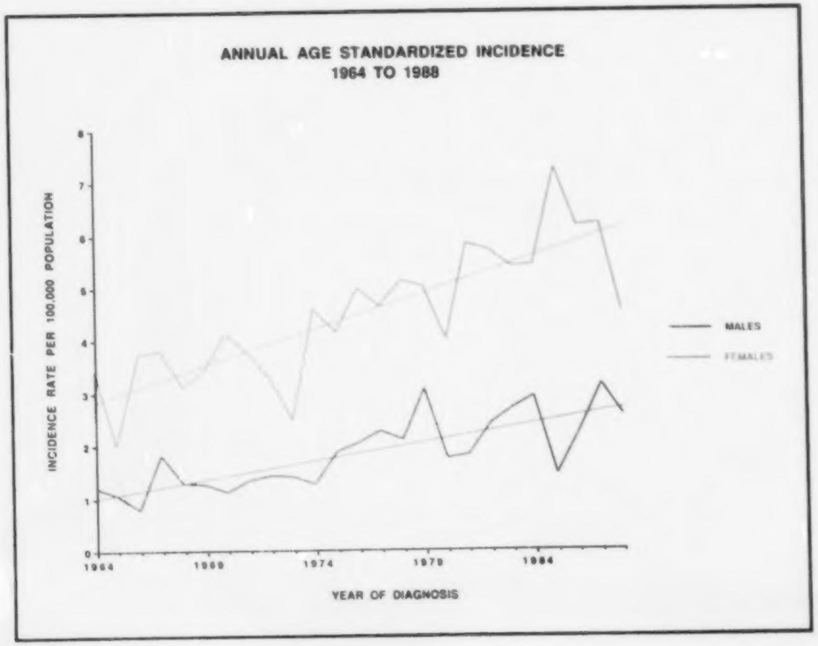
For males in the youngest age group, the rate was 0.6. Rates remained relatively low before increasing to 5.7 in 40 to 44 year olds. The highest incidence rate for males of 10.3 was experienced by 75 to 79 year olds.

Incidence rates showed much annual variation. The lowest female incidence of 2.0 was recorded in 1965 and the highest rate of 7.2 occurred in 1985. The trend line has a slope of 0.137 (†) and demonstrates an increase of 117% during the period. The number of years required for incidence to increase by one case was 7.3.

Male incidence was lowest at 0.8 per 100,000 in 1966 and highest at 3.2 in 1987. The trend line has a slope of 0.071 (†) and indicates that incidence increased by 168% over the period. 14.1 years were required for incidence to increase by one case per 100,000. The ratio of female to male incidence was 2.8 in 1964 and dropped slightly to 2.6 in 1988.

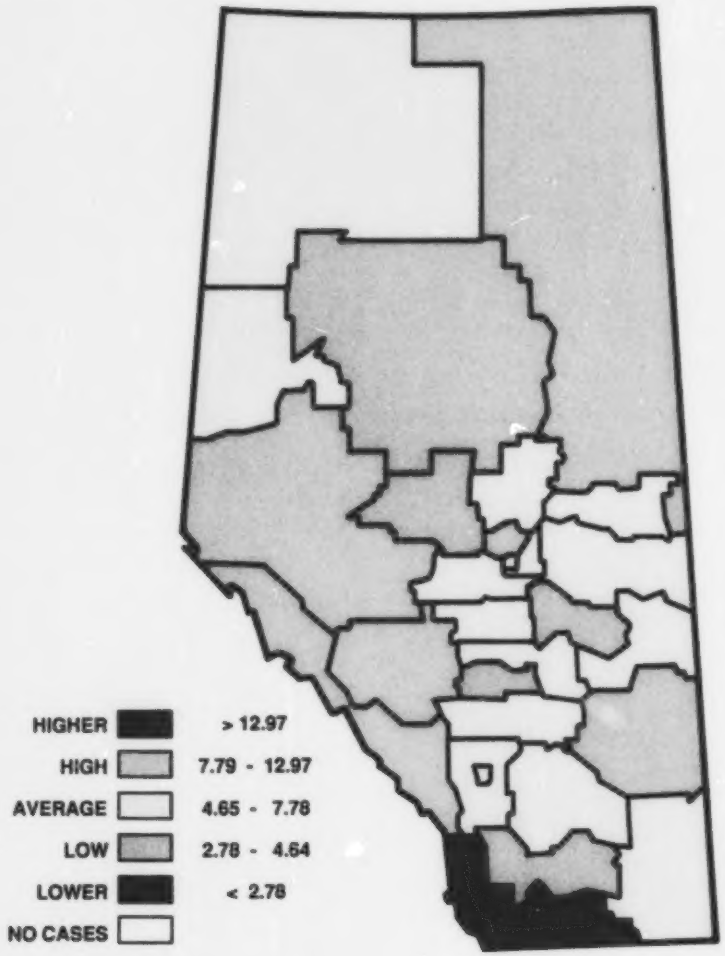
The provincial incidence rates for the mapped data were 6.0 per 100,000 for females and 2.5 for males. On the map of female rates, 4 areas were high. Lower incidence was observed in 2 areas and 7 areas were low. The map of male rates shows 2 areas with higher incidence and 4 classed as high. Lower incidence was observed in 6 areas and 8 areas were low. Mapped areas 7 and 23 were above average on both maps while areas 4, 13, 15, 24 and 27 were below average for both females and males.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1984 TO 1988

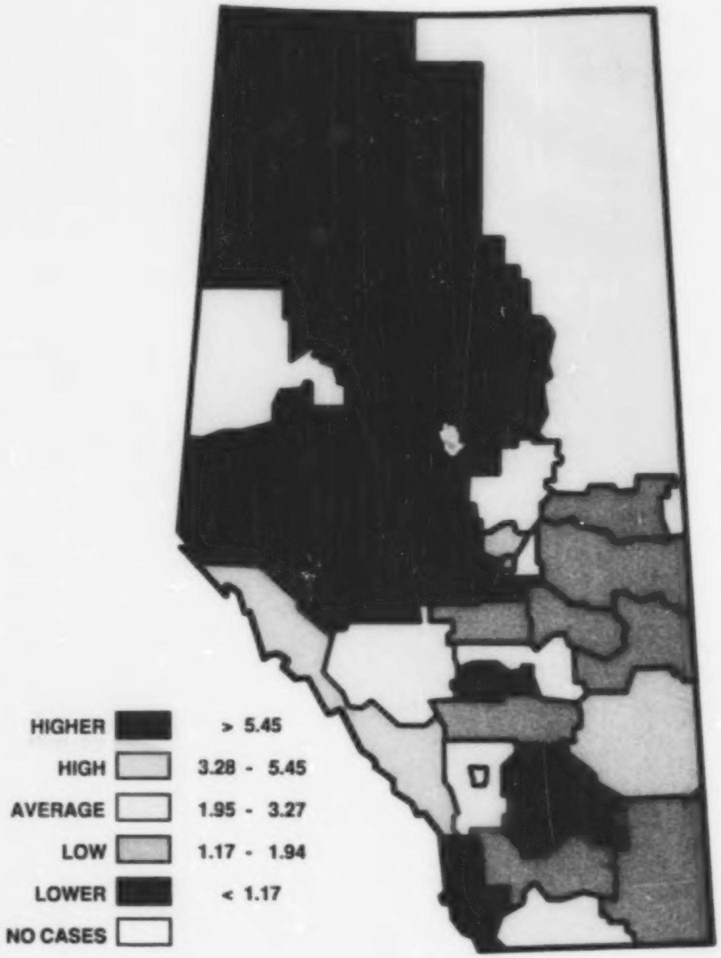

ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

# ICD-9 CODES 193, 194

FEMALES


HIGHER > 12.97
HIGH 7.79 - 12.97
AVERAGE 4.65 - 7.78
LOW 2.78 - 4.64
LOWER < 2.78
NO CASES

MALES


HIGHER > 5.45
HIGH 3.28 - 5.45
AVERAGE 1.95 - 3.27
LOW 1.17 - 1.94
LOWER < 1.17
NO CASES

# ENDOCRINE GLANDS

The survival experience of persons diagnosed with cancer of the endocrine glands is shown. Median survival times are tabulated for all age groups except those where more than half the sample survived the follow-up period. The curves were quite distinct for different age groups. Young patients showed the best survival.

The median survival time for females aged 55 to 64 was 17.2 years which was 72% of their anticipated life expectancy. The oldest group of females experienced a median survival of 5 months and this was 7% of their life expectancy.

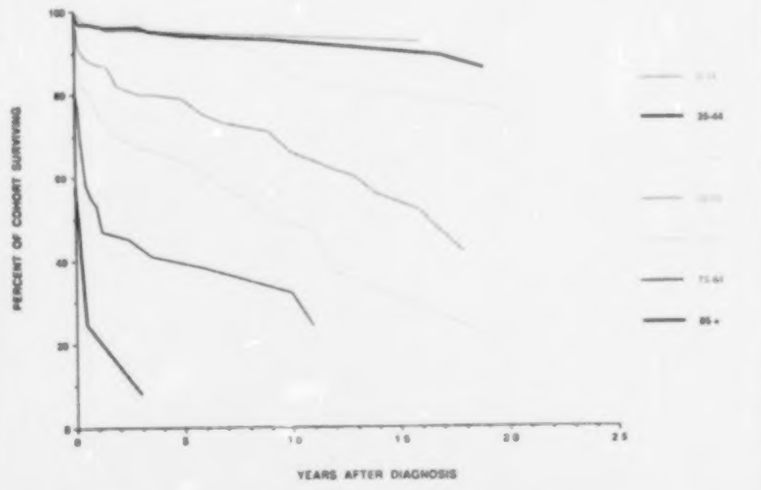
For males, the youngest age group did not experience the best survival. Median survival for males aged 45 to 54 was 22.3 years which was 82% of their anticipated life expectancy. The oldest two groups of males had very short median survival periods which were only small proportions of their anticipated life expectancy.

Female survival was generally better than male survival and this was best shown in 55 to 64 year olds. Females survived on average 72% of their anticipated life expectancy compared to just 36% in males. Large differences were displayed in 65 to 74 year olds as well.

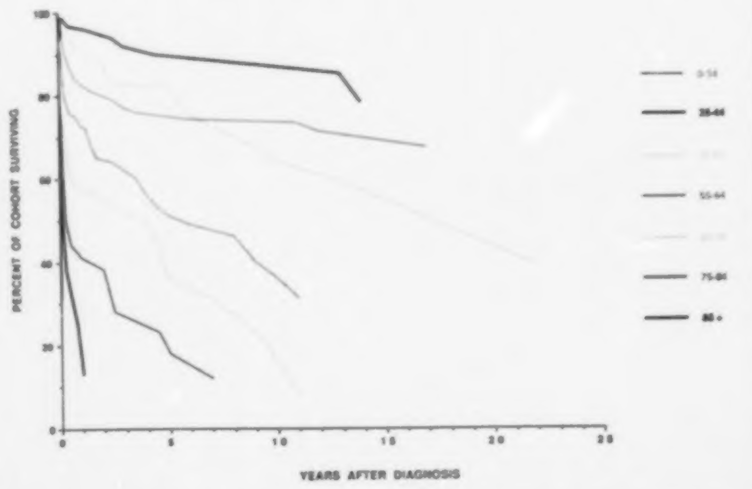
LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 387 | -- | 63.9 | -- | -- |
| 35-44 | 221 | -- | 41.7 | -- | -- |
| 45-54 | 174 | -- | 32.4 | -- | -- |
| 55-64 | 142 | 17.2 | 23.7 | 6.5 | 72% |
| 65-74 | 114 | 9.9 | 15.8 | 5.9 | 63% |
| 75-84 | 53 | 1.3 | 9.1 | 7.8 | 14% |
| 85+ | 12 | 0.4 | 6.0 | 5.6 | 7% |
| MALES | | | | | |
| 0-34 | 161 | -- | 57.7 | -- | -- |
| 35-44 | 71 | -- | 36.6 | -- | -- |
| 45-54 | 74 | 22.3 | 27.3 | 5.0 | 82% |
| 55-64 | 78 | 6.8 | 19.2 | 12.4 | 36% |
| 65-74 | 53 | 4.3 | 12.3 | 8.0 | 35% |
| 75-84 | 34 | 0.5 | 7.2 | 6.7 | 7% |
| 85+ | 8 | 0.4 | 5.0 | 4.6 | 8% |

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES



MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

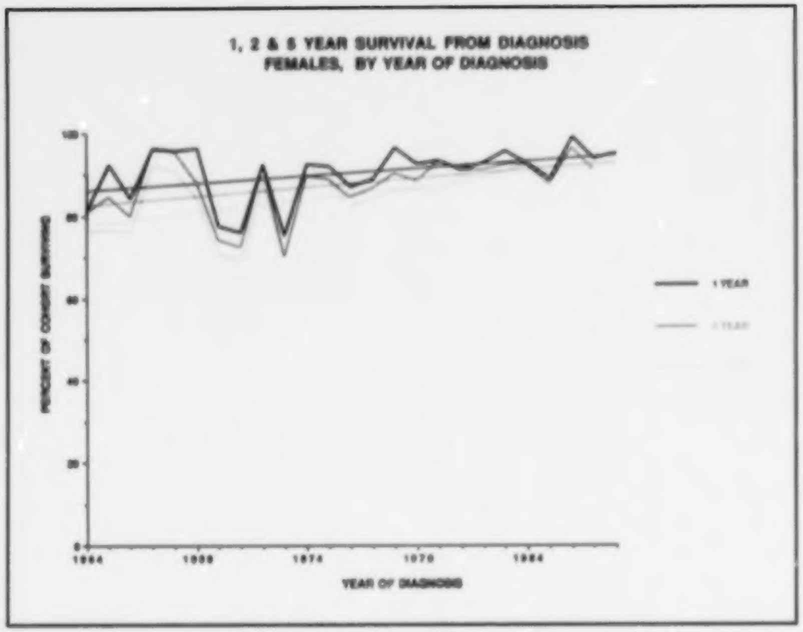


Compared to all other site groups, female one, two, and five year survival rates were similar to those of females diagnosed with melanoma of the skin and were ranked third highest. Annual variation in the rates was relatively large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 44 per year. The lowest number of cases in any year was 13.

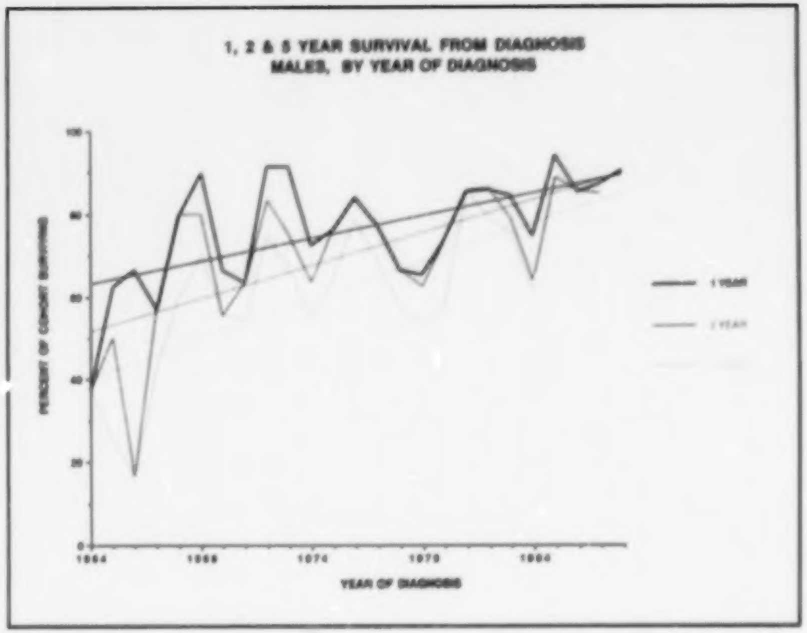
The slopes of the female trend lines are: one year = 0.348 (†), two year = 0.417 (†) and five year = 0.600 (†). According to the trend lines, one year survival rates began the interval at 85.9% and increased to 94.3% in 1988. Two year survival rates (trend line) increased from 82.5% in 1964 to 92.5% in 1988. On average, two year rates were 96% of one year rates. Five year survival rates (trend line) began the interval at 77.8% and increased to 92.2% in 1988. They averaged 93% of one year survival rates.

For males, the survival rates ranked seventh highest for one year survival, third highest for two year and third highest for five year. Annual variation in the rates was very large and part of this variation can be explained as a small numbers problem. The average number of males diagnosed with this cancer was 19 per year. In 6 years the number of cases was less than 10.

The slopes of the male trend lines are: one year = 1.102 (†), two year = 1.598 (†) and five year = 1.883 (†). According to the trend lines, one year survival rates began the interval at 63.4% and increased to 89.8% in 1988. Two year survival rates (trend line) increased from 51.5% in 1964 to 89.9% in 1988. On average, two year rates were 91% of one year rates. Five year survival rates (trend line) began the interval at 40.2% and increased to 85.4% in 1988. They averaged 79% of one year survival rates.



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

# UNKNOWN PRIMARY SITE

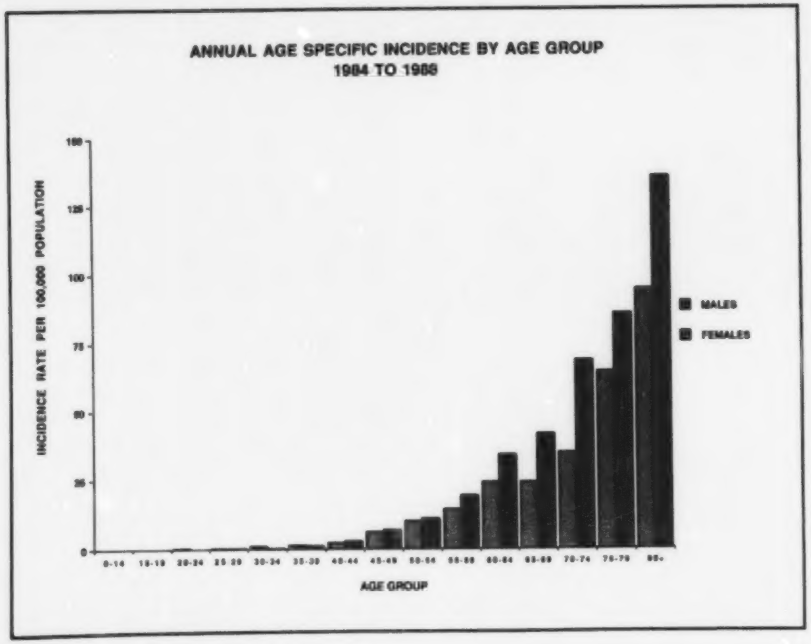
Cancers of unknown primary site were relatively uncommon when compared to other cancers. Their occurrence in young people was very rare. Female incidence rates were less than 1.0 per 100,000 in the four youngest age groups. Increases occurred through all age groups and reached a maximum of 94.7 in females aged 80 years or older.

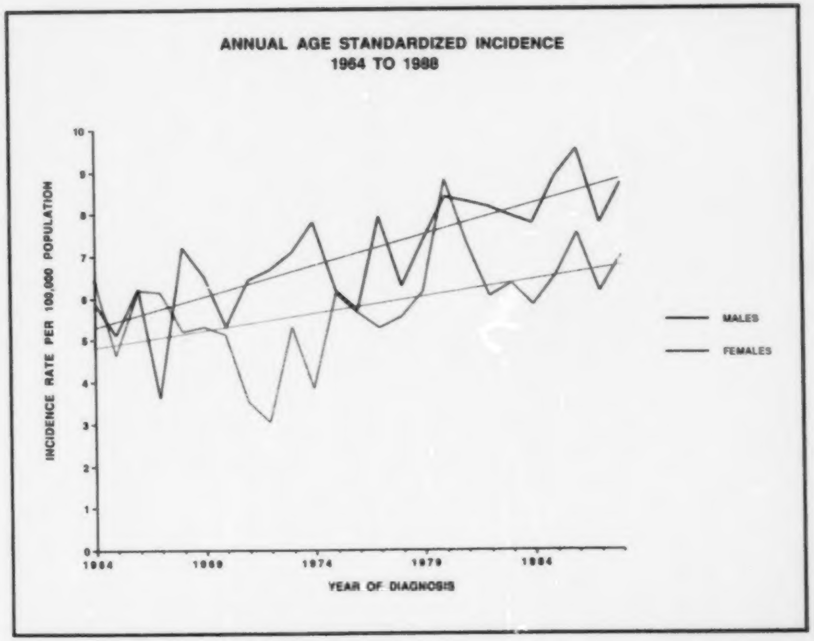
Male rates were less than 1.0 in the five youngest age groups. Increases occurred in all subsequent age groups. The highest incidence rate for males was 133.7 in males over the age of 80 years. Female incidence exceeded male incidence in the younger age categories, but beyond age 40 the male rate was higher. In 70 to 74 year olds, the male rate doubled the female rate.

Between 1964 and 1988 incidence rates showed wide annual variation and a trend of increasing incidence. The trend line has a slope of 0.081 (†) but it is a relatively poor representation of the data. The trend line shows an increase of 40% over the interval but the actual 1988 incidence was only 9.4% higher than the actual 1964 rate.

Male incidence also showed considerable variation. The trend line has a slope of 0.158 (†) and indicates that incidence increased by 80% over the period.

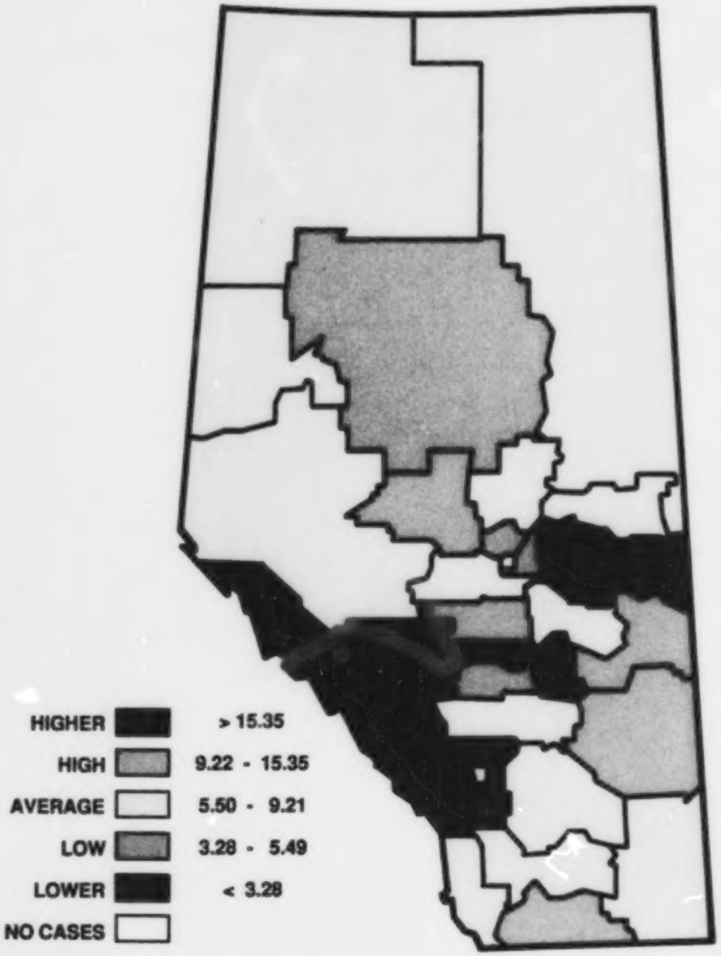
The provincial incidence rates for the mapped data were 7.1 per 100,000 for females and 8.6 for males. On the map of female rates, no areas had higher incidence and 5 areas were high. Lower incidence was observed in 5 areas and 4 areas were low. The map of male rates shows no areas with higher incidence and 6 classed as high. Lower incidence was observed in 1 area and 9 areas were low. No cases were recorded in 1 area. Mapped area 9 was above average on both maps while areas 12, 13, 17, 18 and 27 were below average.


ANNUAL AGE SPECIFIC INCIDENCE BY AGE GROUP
1964 TO 1988

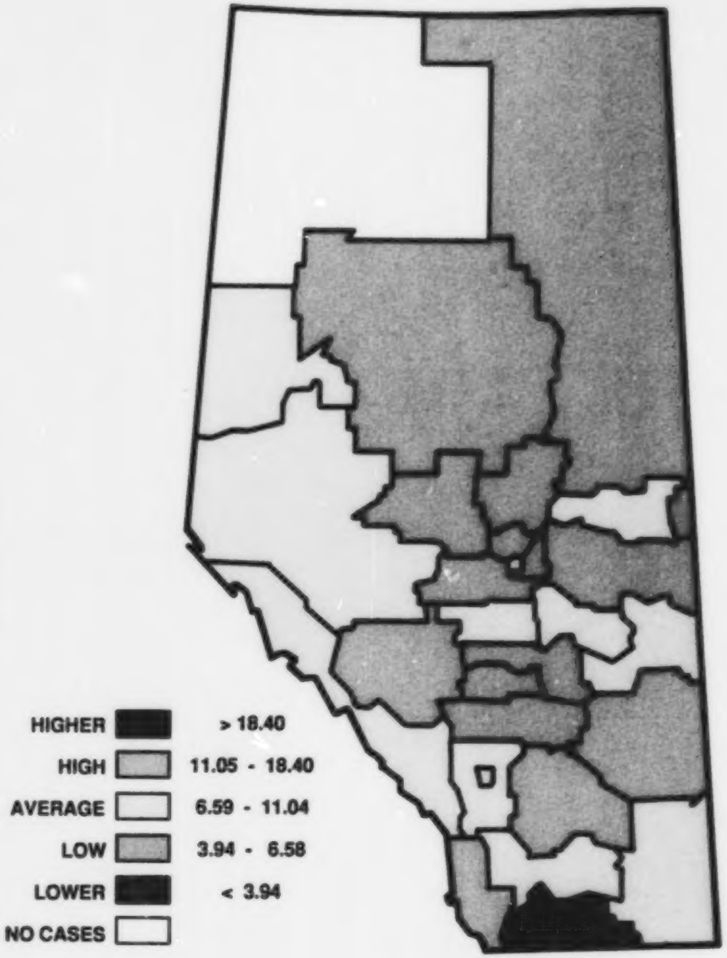

ANNUAL AGE STANDARDIZED INCIDENCE
1964 TO 1988

# ICD-9 CODES 196, 197, 198, 199

FEMALES


HIGHER ■ > 15.35
HIGH ▨ 9.22 - 15.35
AVERAGE ☐ 5.50 - 9.21
LOW ▨ 3.28 - 5.49
LOWER ■ < 3.28
NO CASES ☐

MALES


HIGHER ■ > 18.40
HIGH ▨ 11.05 - 18.40
AVERAGE ☐ 6.59 - 11.04
LOW ▨ 3.94 - 6.58
LOWER ■ < 3.94
NO CASES ☐

# UNKNOWN PRIMARY SITE

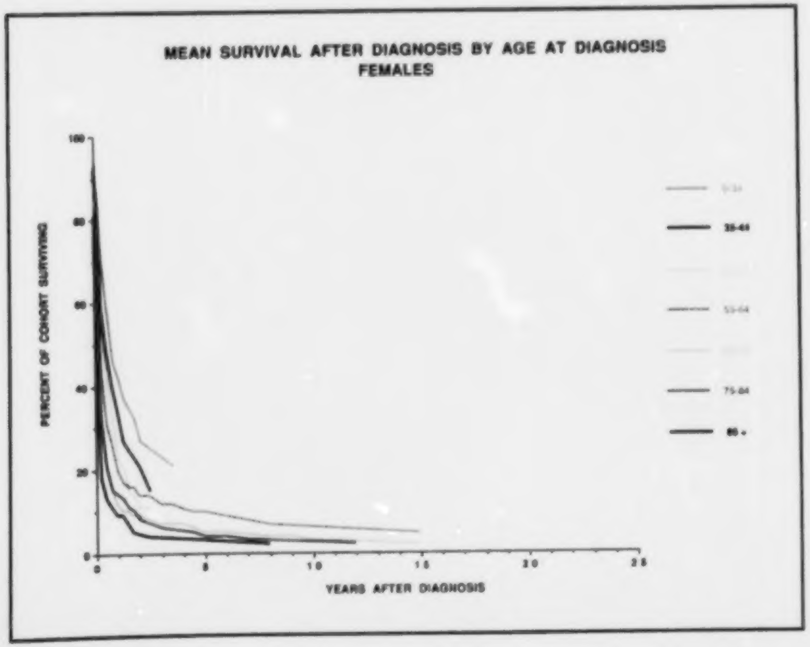
The survival experience of persons diagnosed with an unknown primary cancer is shown and median survival times are tabulated. Survival times were very poor and a substantial number cases failed to live even one month after diagnosis.

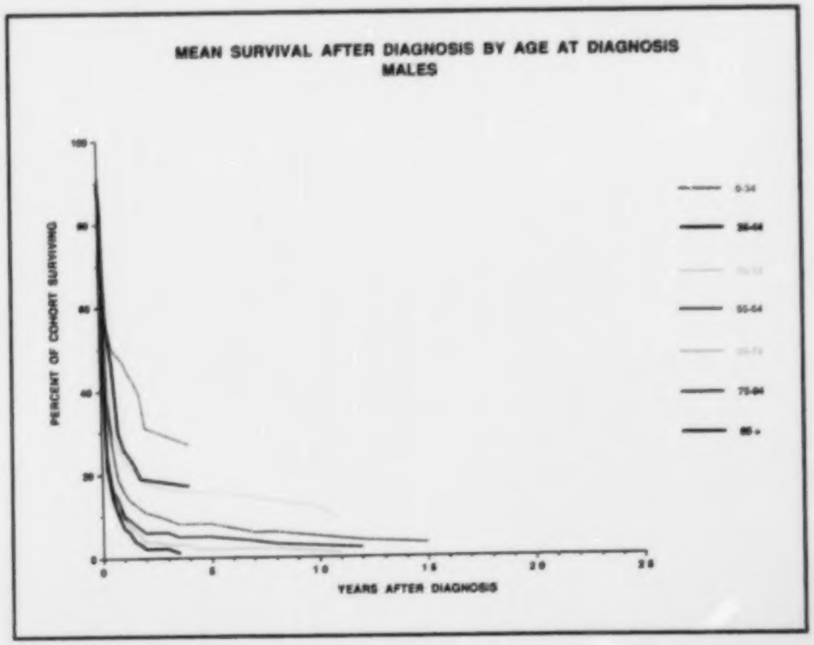
The longest median survival period for females was experienced by the youngest age group (11 months). The oldest females had a median survival time of 1 month. Median survival times for all ages of females were just one or two percent of their anticipated life expectancy.

Median survival times for males were as short as those for females, ranging from 2 to 12 months. Median survival for the oldest males was 3% of their anticipated life expectancy and the proportion was less for all other age groups.

LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 24 | 0.9 | 63.9 | 63.0 | 1% |
| 35-44 | 58 | 0.7 | 41.7 | 41.0 | 2% |
| 45-54 | 154 | 0.6 | 32.4 | 31.8 | 2% |
| 55-64 | 308 | 0.4 | 23.7 | 23.3 | 2% |
| 65-74 | 350 | 0.3 | 15.8 | 15.5 | 2% |
| 75-84 | 343 | 0.2 | 9.1 | 8.9 | 2% |
| 85+ | 151 | 0.1 | 6.0 | 5.9 | 1% |
| MALES | | | | | |
| 0-34 | 36 | 1.0 | 57.7 | 56.7 | 2% |
| 35-44 | 54 | 0.7 | 36.6 | 35.9 | 2% |
| 45-54 | 160 | 0.3 | 27.3 | 27.0 | 1% |
| 55-64 | 376 | 0.3 | 19.2 | 18.9 | 1% |
| 65-74 | 515 | 0.2 | 12.3 | 12.1 | 1% |
| 75-84 | 381 | 0.2 | 7.2 | 7.0 | 2% |
| 85+ | 126 | 0.2 | 5.0 | 4.8 | 3% |


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES


MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

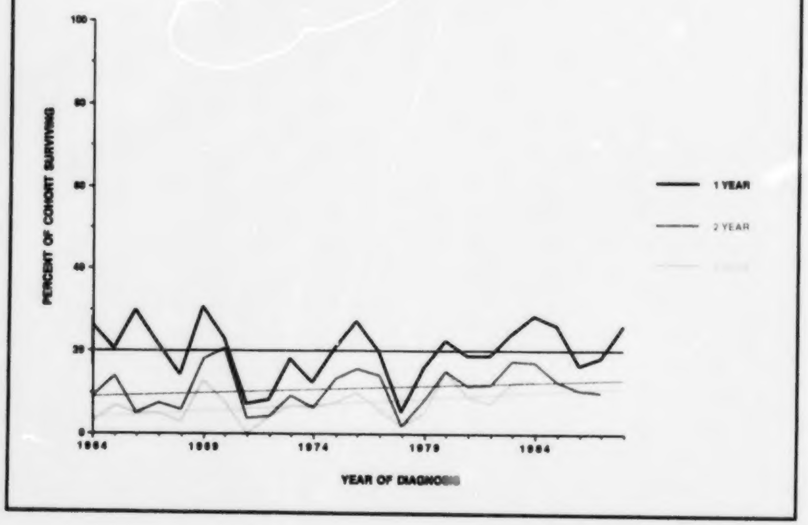
Compared to all other site groups, female one, two and five year survival rates ranked third lowest. Annual variation in the rates was relatively small and a large number of cases each year contributed to this. The average number of females diagnosed with this cancer was 56 per year and the annual number of cases was never lower than 24.

The slopes of the female trend lines are: one year = 0.015 (↔), two year = 0.165 (↔) and five year = 0.303 (↑). According to the trend lines, one year survival rates began the interval at 20.0% and increased slightly to 20.4% in 1988. Two year survival rates (trend line) increased from 9.0% in 1964 to 12.9% in 1988. On average, two year rates were 54% of one year rates. Five year survival rates (trend line) began the interval at 4.0% and increased to 11.2% in 1988. They averaged 37% of one year survival rates.

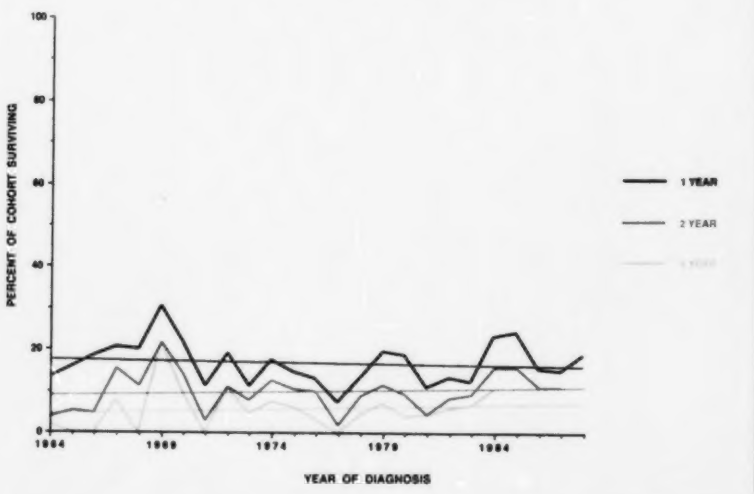
For males, the one, two and five year survival rates ranked third lowest. Annual variation in the rates was relatively small and a large number of cases each year contributed to this. The average number of males diagnosed with this cancer was 66 per year and the annual number of cases was never lower than 21.

The slopes of the male trend lines are: one year = -0.067 (↔), two year = 0.096 (↔) and five year = 0.117 (↔). According to the trend lines, one year survival rates began the interval at 17.6% and decreased slightly to 15.9% in 1988. Two year survival rates (trend line) increased slightly from 8.8% in 1964 to 11.0% in 1988. On average, two year rates were 60% of one year rates. Five year survival rates (trend line) began the interval at 4.4% and increased slightly to 7.2% in 1988. They averaged 32% of one year survival rates.

1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS



1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS



# OTHER PRIMARY SITES

The category of other primary sites includes pleura, thymus, heart, mediastinum, other and ill-defined sites within the respiratory and intrathoracic organs, eye, male breast and male genital organs. The inclusion of male gender specific sites contributes to the higher rates experienced by males.

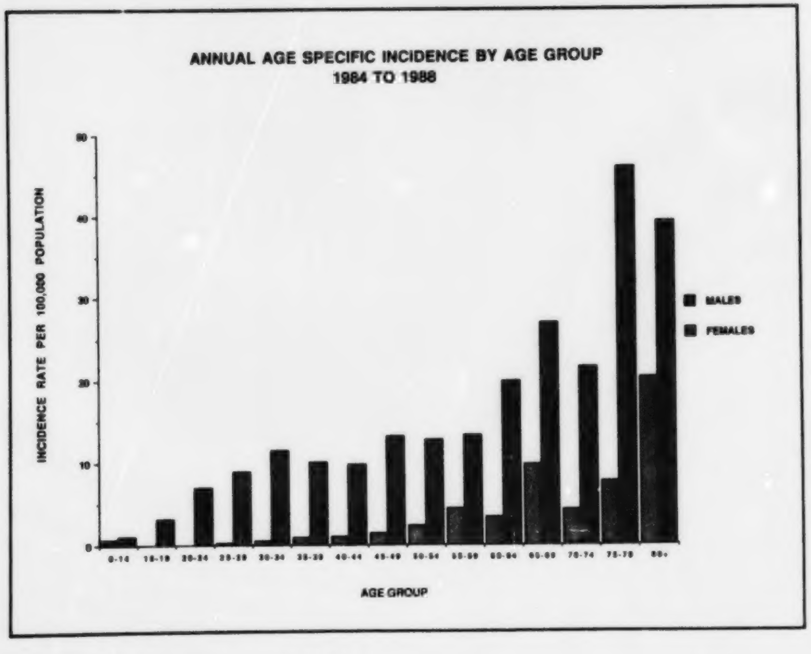
The incidence rate of 0.7 per 100,000 in the youngest females represented 6% of all cancers occurring in this age group. The oldest females had the highest incidence of 21.2.

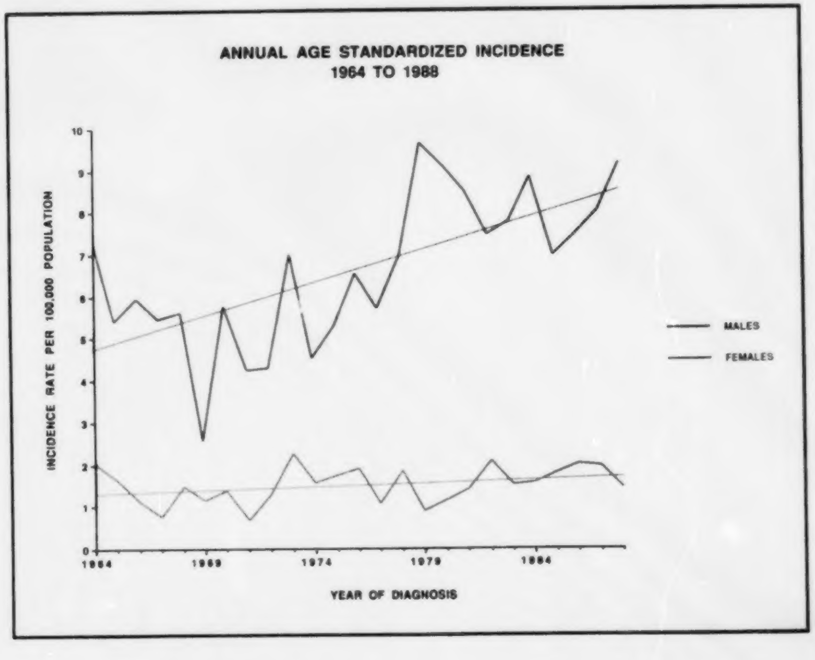
For males under the age of 45, these cancers were amongst the five most frequently occurring. Incidence was 1.0 per 100,000 in the youngest males and reached 46.1 in 75 to 79 year olds.

Between 1964 and 1988 incidence rates for females remained relatively stable and were always lower than male rates. The slope of the trend line is 0.021 (↔).

Male incidence was lowest at 3.6 in 1967 and peaked at 9.5 in 1986. The trend line has a slope of 0.148 (↑) and shows an increase in incidence of 68% during the period. Incidence increased by one case per 100,000 every 6.8 years. The ratio of male incidence to female incidence (as taken from the trend lines) was 4.3 in 1964 and increased to 5.2 in 1988.

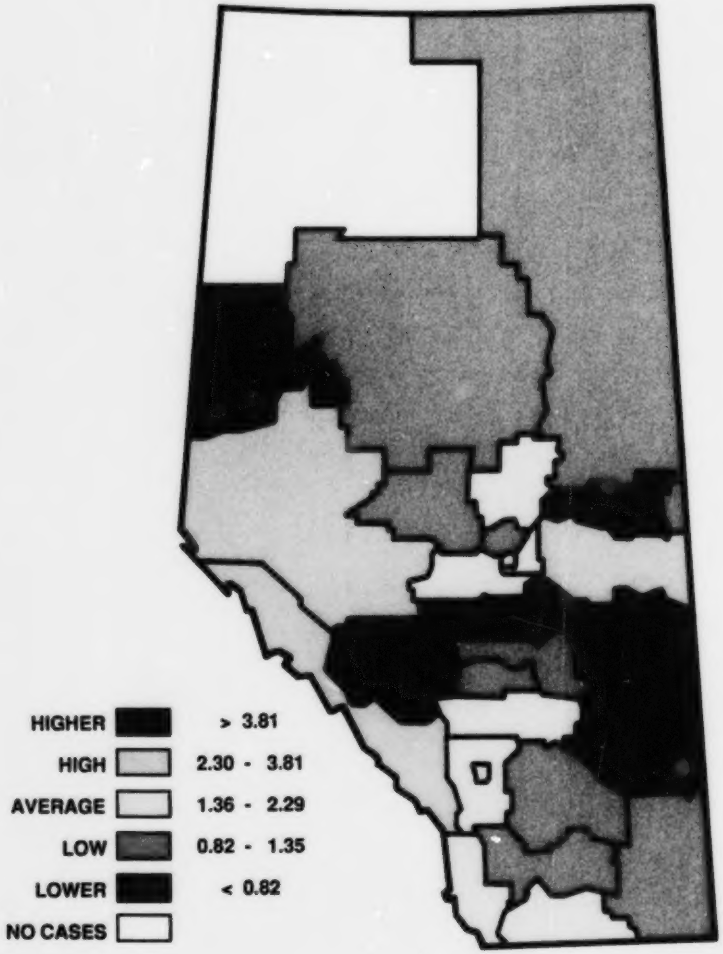
The provincial incidence rates for the mapped data were 1.8 per 100,000 for females and 9.1 for males. On the map of female rates, 4 areas had higher incidence and 3 areas were high. Lower incidence was observed in 3 areas and 9 areas were low. No cases were recorded in 1 area. The map of male rates shows 5 classed as high. Lower incidence was observed in 4 areas and 9 areas were low. No cases were recorded in 1 area. Mapped areas 7 and 16 were above average on both maps while areas 4, 15, 22, 23, 24, 26, 28 and 29 were below average for both genders.



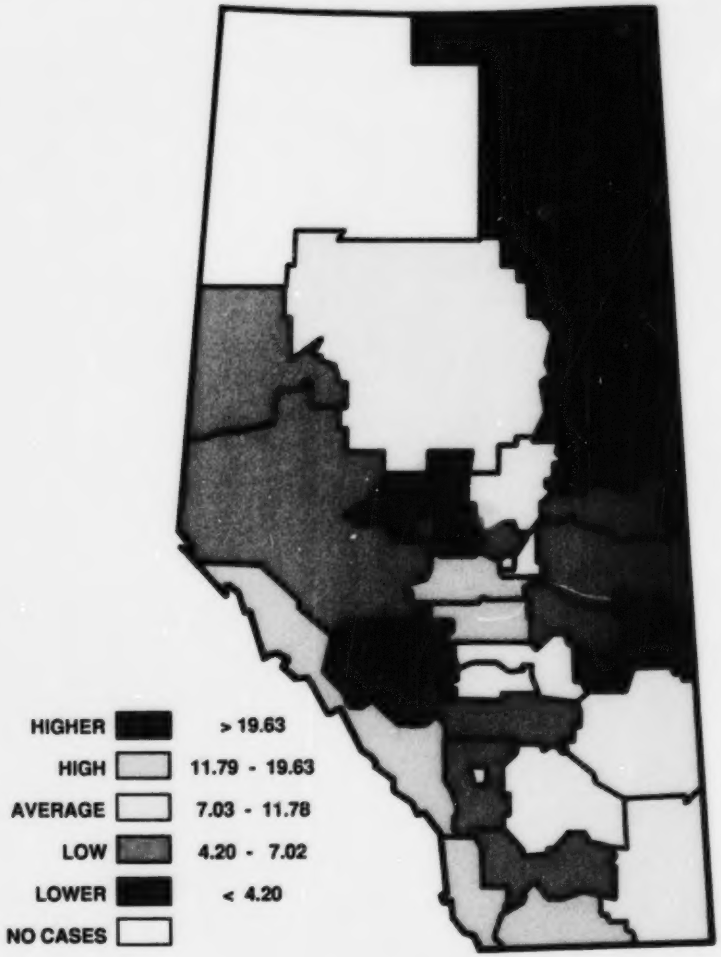


## ICD-9 CODES 163 TO 165, 175, 186, 187, 190, 195

FEMALES


HIGHER > 3.81
HIGH 2.30 - 3.81
AVERAGE 1.36 - 2.29
LOW 0.82 - 1.35
LOWER < 0.82
NO CASES

MALES


HIGHER > 19.63
HIGH 11.79 - 19.63
AVERAGE 7.03 - 11.78
LOW 4.20 - 7.02
LOWER < 4.20
NO CASES

# OTHER PRIMARY SITES

The survival experience of persons diagnosed with other cancers is shown and median survival times are tabulated for all age groups except those where more than half the sample survived the follow-up period. It is not fair in this instance to compare the survival experience of females to that of males due to the inclusion of different, gender-specific cancers in this site group.

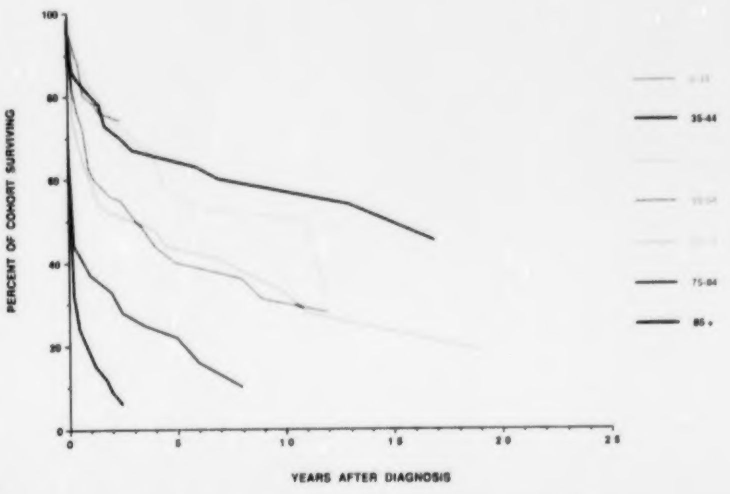
The number of cases in each age category for females was relatively low. Females aged 35 to 44 experienced a median survival of 17.4 years which was 42% of their anticipated life expectancy. Median survival was lowest in the two oldest age groups (4 months and 2 months respectively) which amounted to only 3% of their anticipated life expectancy.

Male survival was relatively good in all age groups. Males aged 45 to 54 had a median survival time of 19.6 years which was 72% of their anticipated life expectancy. The lowest median survival of 22 months was experienced by the oldest males. The median survival of 75 to 84 year olds was the lowest proportion of the anticipated life expectancy (32%).

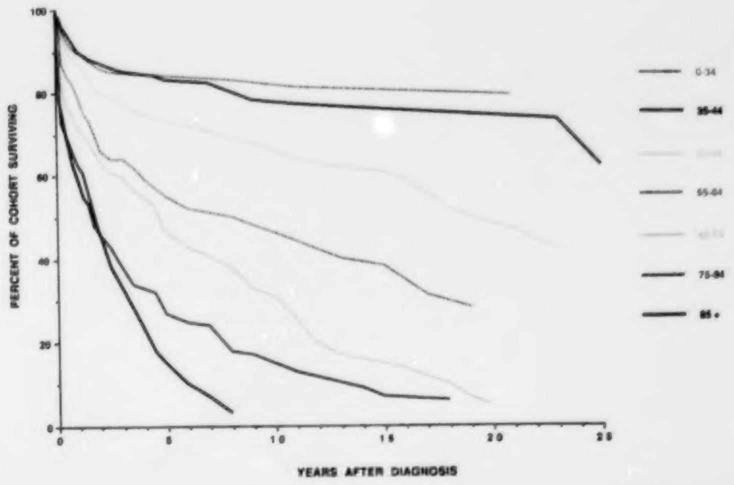
LIFE EXPECTANCY AFTER DIAGNOSIS

| | Number of Cases | Actual Median Survival | Popul. Life Expect. | Potential Years of Life Lost | Expected Years Survived |
|---|---|---|---|---|---|
| FEMALES | | | | | |
| 0-34 | 59 | -- | 63.9 | -- | -- |
| 35-44 | 37 | 17.4 | 41.7 | 24.3 | 42% |
| 45-54 | 48 | 12.0 | 32.4 | 20.4 | 37% |
| 55-64 | 67 | 3.7 | 23.7 | 20.0 | 15% |
| 65-74 | 61 | 4.3 | 15.8 | 11.5 | 27% |
| 75-84 | 43 | 0.3 | 9.1 | 8.8 | 3% |
| 85+ | 34 | 0.2 | 6.0 | 5.8 | 3% |
| MALES | | | | | |
| 0-34 | 653 | -- | 57.7 | -- | -- |
| 35-44 | 278 | -- | 36.6 | -- | -- |
| 45-54 | 245 | 19.6 | 27.3 | 7.7 | 72% |
| 55-64 | 216 | 8.4 | 19.2 | 10.8 | 44% |
| 65-74 | 208 | 5.5 | 12.3 | 6.8 | 45% |
| 75-84 | 143 | 2.3 | 7.2 | 4.9 | 32% |
| 85+ | 49 | 1.8 | 5.0 | 3.2 | 37% |

MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
FEMALES



MEAN SURVIVAL AFTER DIAGNOSIS BY AGE AT DIAGNOSIS
MALES

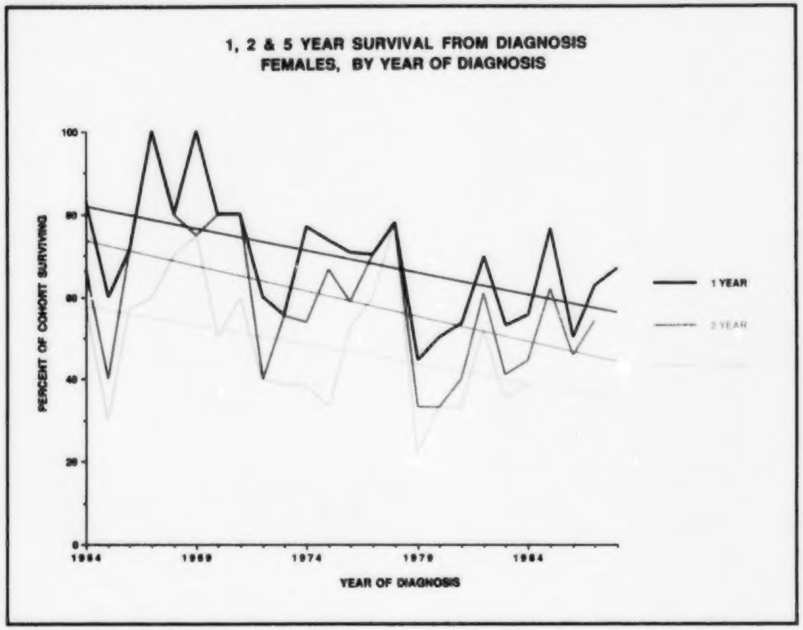


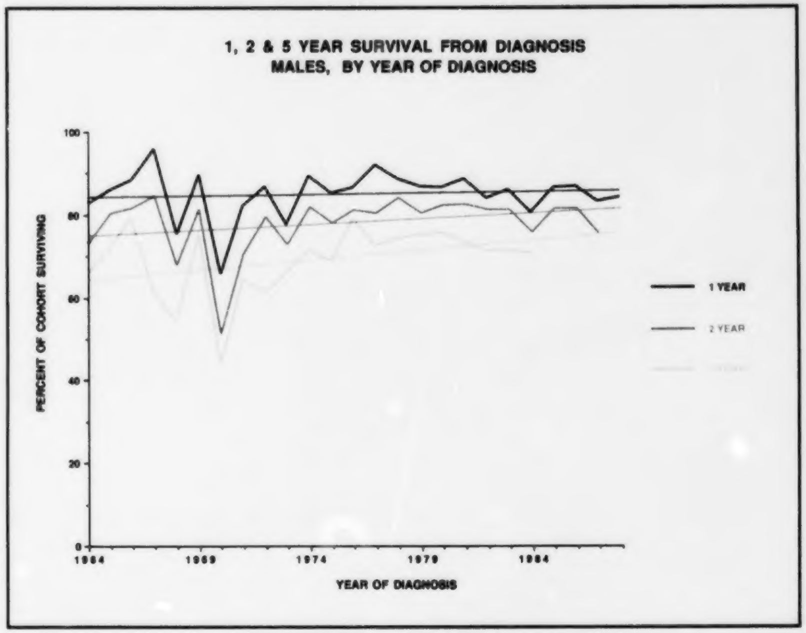
Compared to all other site groups, female one, two and five year survival rates ranked in the middle of the range. Annual variation in the rates was very large and part of this variation can be explained as a small numbers problem. The average number of females diagnosed with this cancer was 14 per year. The lowest number of cases in any year was 5.

The slopes of the female trend lines are: one year = -1.075 (↓), two year = -1.222 (↓) and five year = -0.942 (↔). According to the trend lines, one year survival rates began the interval at 81.7% and decreased to 55.9% in 1988. Two year survival rates (trend line) decreased from 73.7% in 1964 to 44.3% in 1988. On average, two year rates were 88% of one year rates. Five year survival rates (trend line) began the interval at 57.9% and decreased to 35.2% in 1988. They averaged 70% of one year survival rates.

For males, the one, two, and five year survival rates ranked third highest. Annual variation in the rates was relatively large despite a reasonable number of cases each year. The average number of males diagnosed with this cancer was 71 per year and the annual number of cases was never lower than 26.

The slopes of the male trend lines are: one year = 0.061 (↔), two year = 0.271 (↔) and five year = 0.480 (↔). According to the trend lines, one year survival rates began the interval at 84.5% and increased slightly to 86.0% in 1988. Two year survival rates (trend line) increased from 74.9% in 1964 to 81.4% in 1988. On average, two year rates were 92% of one year rates. Five year survival rates (trend line) began the interval at 64.3% and increased to 75.8% in 1988. They averaged 83% of one year survival rates.


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
FEMALES, BY YEAR OF DIAGNOSIS


1, 2 & 5 YEAR SURVIVAL FROM DIAGNOSIS
MALES, BY YEAR OF DIAGNOSIS

# APPENDICES

# GROUPINGS OF ICD-9 SITES USED IN ANALYSES

| Site Group | ICD-9 Code | ICD-9 Title |
|---|---|---|
| 1 | 140 | LIP |
| 1 | 141 | TONGUE |
| 1 | 142 | MAJOR SALIVARY GLANDS |
| 1 | 143 | GUM |
| 1 | 144 | FLOOR OF MOUTH |
| 1 | 145 | OTHER AND UNSPECIFIED PATS OF MOUTH |
| 1 | 146 | OROPHARYNX |
| 1 | 147 | NASOPHARYNX |
| 1 | 148 | HYPOPHARYNX |
| 1 | 149 | OTHER AND ILL-DEFINED SITES WITHIN LIP, ORAL CAVITY AND PHARYNX |
| 2 | 150 | ESOPHAGUS |
| 3 | 151 | STOMACH |
| 9 | 152 | SMALL INTESTINE, INCLUDING DUODENUM |
| 4 | 153 | COLON |
| 4 | 154.0 | RECTOSIGMOID JUNCTION |
| 5 | 154.1 | RECTUM |
| 5 | 154.2 | ANAL CANAL |
| 5 | 154.3 | ANUS, UNSPECIFIED |
| 5 | 154.8 | OTHER PARTS OF RECTUM |
| 6 | 155 | LIVER AND INTRAHEPATIC BILE DUCTS |
| 7 | 156 | GALLBLADDER AND EXTRAHEPATIC BILE DUCTS |
| 8 | 157 | PANCREAS |
| 9 | 158 | RETROPERITONEUM AND PERITONEUM |
| 9 | 159 | OTHER AND ILL-DEFINED SITES WITHIN DIGESTIVE ORGANS AND PERITONEUM |
| 1 | 160 | NASAL CAVITIES, MIDDLE EAR AND ACCESSORY SINUSES |
| 10 | 161 | LARYNX |
| 11 | 162 | TRACHEA, BRONCHUS AND LUNG |
| 28 | 163 | PLEURA |
| 28 | 164 | THYMUS, HEART AND MEDIASTINUM |
| 28 | 165 | OTHER AND ILL-DEFINED SITES WITHIN RESPIRATORY SYSTEM AND INTRATHORACIC ORGANS |

| Site Group | ICD-9 Code | ICD-9 Title |
|---|---|---|
| 13 | 170 | BONE AND ARTICULAR CARTILAGE |
| 13 | 171 | CONNECTIVE AND OTHER SOFT TISSUES |
| 14 | 172 | MELANOMA OF SKIN |
| 15 | 173 | OTHER MALIGNANT NEOPLASM OF SKIN |
| 16 | 174 | FEMALE BREAST |
| 28 | 175 | MALE BREAST |
| 21 | 179 | UTERUS, PARTS UNSPECIFIED |
| 17 | 180 | CERVIX UTERI |
| 21 | 181 | PLACENTA |
| 19 | 182 | BODY OF UTERUS |
| 20 | 183 | OVARY, AND OTHER UTERINE ADNEXA |
| 21 | 184 | OTHER AND UNSPECIFIED FEMALE GENITAL ORGANS |
| 22 | 185 | PROSTATE |
| 28 | 186 | TESTIS |
| 28 | 187 | PENIS AND OTHER MALE GENITAL ORGANS |
| 23 | 188 | BLADDER |
| 24 | 189 | KIDNEY AND OTHER AND UNSPECIFIED URINARY ORGANS |
| 28 | 190 | EYE |
| 25 | 191 | BRAIN |
| 25 | 192 | OTHER AND UNSPECIFIED PARTS OF NERVOUS SYSTEM |
| 26 | 193 | THYROID GLAND |
| 26 | 194 | OTHER ENDOCRINE GLANDS AND RELATED STRUCTURES |
| 28 | 195 | OTHER AND ILL-DEFINED SITES |
| 27 | 196 | LYMPH NODES |
| 27 | 197 | RESPIRATORY AND DIGESTIVE SYSTEMS |
| 27 | 198 | SECONDARY MALIGNANT NEOPLASM OF OTHER SPECIFIED SITES |
| 27 | 199 | MALIGNANT NEOPLASM WITHOUT SPECIFICATION OF SITE |

# GROUPINGS OF ICD-9 SITES USED IN ANALYSES

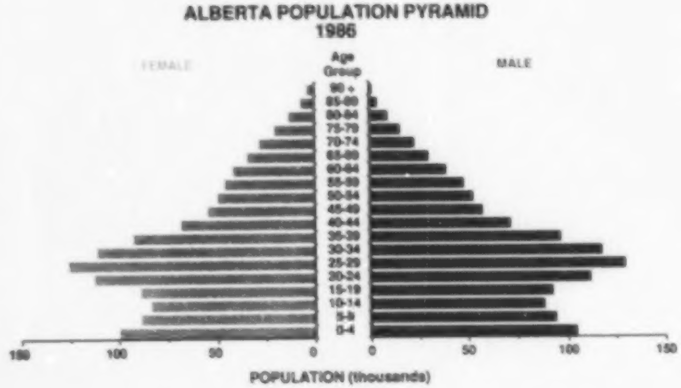
| Site Group | ICD-9 Code | ICD-9 Title |
|---|---|---|
| 12 | 200 | LYMPHOSARCOMA AND RETICULOSARCOMA |
| 12 | 201 | HODGKIN'S DISEASE |
| 12 | 202 | LYMPHOID AND HISTIOCYTIC TISSUE |
| 12 | 203 | MYELOMA AND IMMUNOPROLIFERATIVE NEOPLASMS |
| 12 | 204 | LYMPHOID LEUKAEMIA |
| 12 | 205 | MYELOID LEUKAEMIA |
| 12 | 206 | MONOCYTIC LEUKAEMIA |
| 12 | 207 | OTHER SPECIFIED LEUKAEMIA |
| 12 | 208 | LEUKAEMIA OF UNSPECIFIED CELL TYPE |
| 1 | 230.0 | LIP, ORAL CAVITY AND PHARYNX, IN SITU |
| 2 | 230.1 | ESOPHAGUS, IN SITU |
| 3 | 230.2 | STOMACH, IN SITU |
| 4 | 230.3 | COLON, IN SITU |
| 5 | 230.4 | RECTUM, IN SITU |
| 5 | 230.5 | ANAL CANAL, IN SITU |
| 5 | 230.6 | ANUS, UNSPECIFIED, IN SITU |
| 9 | 230.7 | OTHER AND UNSPECIFIED PARTS OF INTESTINE, IN SITU |
| 7 | 230.8 | LIVER AND BILIARY SYSTEM, IN SITU |
| 9 | 230.9 | OTHER AND UNSPECIFIED DIGESTIVE ORGANS, IN SITU |
| 10 | 231.0 | LARYNX, IN SITU |
| 11 | 231.1 | TRACHEA, IN SITU |
| 11 | 231.2 | BRONCHUS AND LUNG, IN SITU |
| 1 | 231.8 | OTHER RESPIRATORY, IN SITU |
| 28 | 231.9 | RESPIRATORY SYSTEM, PART UNSPECIFIED, IN SITU |
| 15 | 232.0 | SKIN OF LIP, IN SITU |
| 15 | 232.1 | EYELID, INCLUDING CANTHUS, IN SITU |
| 15 | 232.2 | EAR AND EXTERNAL AURICULAR CANAL, IN SITU |
| 15 | 232.3 | SKIN OF OTHER AND UNSPECIFIED PARTS OF FACE, IN SITU |
| 15 | 232.4 | SCALP AND SKIN OF NECK, IN SITU |
| 15 | 232.5 | SKIN OF TRUNK, EXCEPT SCROTUM, IN SITU |
| 15 | 232.6 | SKIN OF UPPER LIMB, INCLUDING SHOULDER, IN SITU |
| 15 | 232.7 | SKIN OF LOWER LIMB, INCLUDING HIP, IN SITU |
| 15 | 232.8 | OTHER SPECIFIED SKIN SITES, IN SITU |
| 15 | 232.9 | SKIN SITE UNSPECIFIED, IN SITU |
| 16 | 233.0 | BREAST (FEMALE), IN SITU |
| 28 | 233.0 | BREAST (MALE), IN SITU |
| 18 | 233.1 | CERVIX UTERI, IN SITU |
| 21 | 233.2 | OTHER AND UNSPECIFIED PARTS OF UTERUS, IN SITU |
| 21 | 233.3 | OTHER AND UNSPECIFIED FEMALE GENITAL ORGANS, IN SITU |
| 22 | 233.4 | PROSTATE, IN SITU |
| 28 | 233.5 | PENIS, IN SITU |
| 28 | 233.6 | OTHER AND UNSPECIFIED MALE GENITAL ORGANS, IN SITU |
| 23 | 233.7 | BLADDER, IN SITU |
| 24 | 233.9 | OTHER AND UNSPECIFIED URINARY ORGANS, IN SITU |
| 28 | 234.0 | EYE, IN SITU |
| 28 | 234.8 | OTHER SPECIFIED SITES, IN SITU |
| 27 | 234.9 | SITE UNSPECIFIED, IN SITU |

# THE GEOGRAPHY AND DEMOGRAPHY OF ALBERTA

The Province of Alberta lies between latitudes 49° and 60° North and 110° and 120° West. From north to south, the province is 1,217 kilometres and the east/west dimension ranges from 293 to 650 kilometres. Its total area is 638,233 square kilometres and the province contains more than 30% of the occupied agricultural land of Canada.

The climate of Alberta is continental with mean January temperatures ranging from -8°C in the south-west of the province to -25°C in the north-west. Mean July temperatures range from 15°C to 20°C.

The population, as enumerated at the 1986 census, consisted of 1,173,785 females and 1,192,045 males, representing a 62% increase over the 1966 population. The age distribution of the population is shown. Estimates from the 1986 census indicate that life expectancy at birth is 79.7 years for females and 73.6 years for males. Females aged 40 years have an anticipated life expectancy of 41.2 years and the corresponding value for males is 36.3.

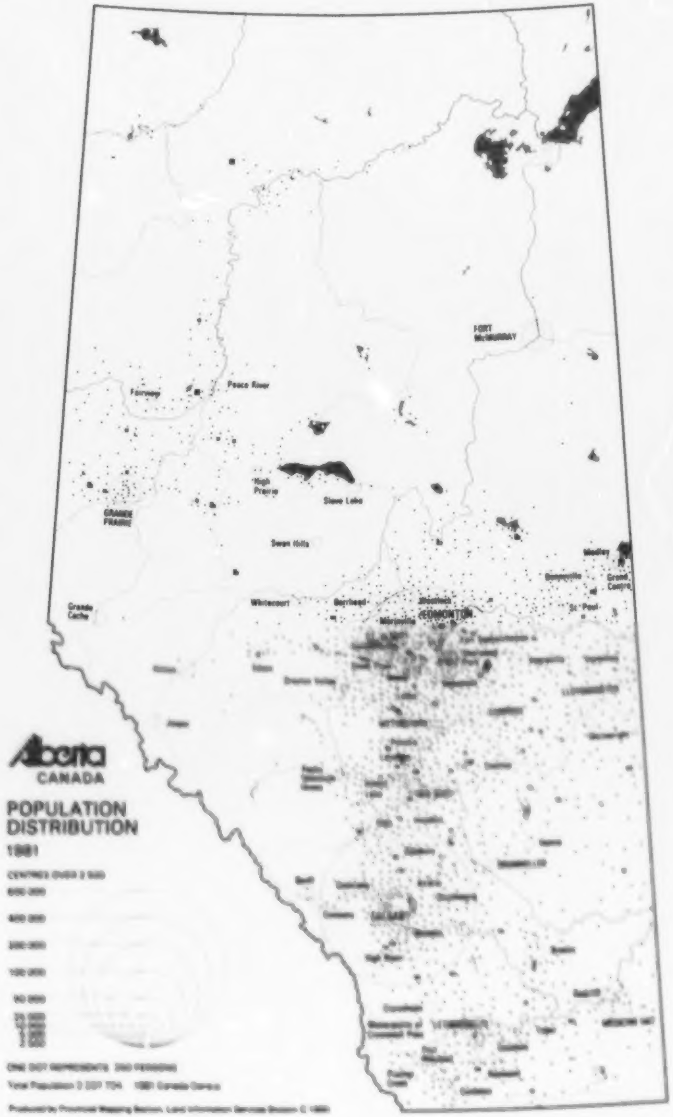


Just over three quarters of the population is urban and over half live in the two largest cities of Edmonton and Calgary. The spatial distribution of the population is shown on the facing page. About 43% of the population are of British extraction while other major ethnic groups include German (13%), Ukrainian (8%), Asians (8%), French (6%) and aboriginal peoples (3%).

The main economic activity of the past has been related to agriculture and animal husbandry and this remains very important. Since the discovery of oil some 40 years ago, oil extraction and the associated petrochemical industry have become a dominant feature of Alberta's economy. The resulting job opportunities produce a dynamic situation of migration to and from other parts of Canada, depending on the status of the economy. Migration from Alberta to elsewhere in Canada has exceeded the reverse exchange between 1983 and 1988.

Unemployment was estimated to be 9.8% in 1986 (the national average was 9.5%). Managerial, professional and clerical occupations accounted for 47% of all employment while 18% were employed in primary occupations and processing. 13% were involved in service industries. Per capita income was $17,504 in 1986, second in Canada only to Ontario. The largest exports from Alberta are crude petroleum and natural gas.

# POPULATION DISTRIBUTION


Alberta
CANADA
POPULATION DISTRIBUTION
1981
600 000
400 000
200 000
100 000
50 000
FORT McMURRAY
Peace River
Fairview
High Prairie
Slave Lake
GRANDE PRAIRIE
Swan Hills
Grande Cache
Whitecourt
Barrhead
Morinville
Westlock
EDMONTON
Bonnyville
St. Paul
Grand Centre
Medley
CALGARY

# CENSUS SUB-DIVISIONS CONTAINED IN EACH MAPPED AREA

MAPPED AREA 1 TOTAL POPULATION = 56,525

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 01 003 CYPRESS NO. 1 | 4,795 |
| 01 004 IRVINE | 305 |
| 01 006 MEDICINE HAT | 41,790 |
| 01 008 FORTY MILE COUNTY NO. 8 | 3,325 |
| 01 009 FOREMOST | 580 |
| 01 012 BURDETT | 260 |
| 01 014 BOW ISLAND | 1,635 |
| 01 018 REDCLIFF | 3,835 |

MAPPED AREA 2 TOTAL POPULATION = 23,135

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 02 001 WARNER COUNTY NO. 5 | 3,575 |
| 02 002 COUTTS | 355 |
| 02 004 MILK RIVER | 850 |
| 02 006 WARNER | 435 |
| 02 008 RAYMOND | 2,980 |
| 02 009 STIRLING | 820 |
| 03 001 CARDSTON NO. 6 | 4,415 |
| 03 002 MAGRATH | 1,630 |
| 03 004 CARDSTON | 3,485 |
| 03 006 GLENWOOD | 295 |
| 03 008 HILLSPRING | 230 |
| 03 802 BLOOD 148 | 4,065 |

MAPPED AREA 3 TOTAL POPULATION = 14,335

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 03 011 PINCHER CREEK NO. 9 | 3,085 |
| 03 014 PINCHER CREEK | 3,785 |
| 03 016 COWLEY | 290 |
| 03 801 PEIGAN 147 | N/A |
| 15 001 IMPROVEMENT DISTRICT NO. 4 | 150 |
| 15 003 IMPROVEMENT DISTRICT NO. 6 | 130 |
| 15 007 CROWSNEST PASS | 6,895 |

MAPPED AREA 4 TOTAL POPULATION = 102,485

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 02 011 LETHBRIDGE COUNTY NO. 26 | 8,245 |
| 02 012 LETHBRIDGE | 58,865 |
| 02 013 COALHURST | 1,245 |
| 02 014 NOBLEFORD | 530 |
| 02 016 BARONS | 280 |
| 02 018 PICTURE BUTTE | 1,600 |
| 02 019 COALDALE | 4,800 |
| 02 021 TABER NO. 14 | 5,280 |
| 02 022 TABER | 6,370 |
| 02 023 BARNWELL | 410 |
| 02 024 GRASSY LAKE | 250 |
| 02 029 VAUXHALL | 995 |
| 03 018 WILLOW CREEK NO. 26 | 4,735 |
| 03 019 FORT MACLEOD | 3,115 |
| 03 021 GRANUM | 365 |
| 03 022 CLARESHOLM | 3,380 |
| 03 024 STAVELY | 460 |
| 03 026 NANTON | 1,560 |

MAPPED AREA 5 TOTAL POPULATION = 36,520

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 02 031 NEWELL COUNTY NO. 4 | 6,130 |
| 02 032 TILLEY | 365 |
| 02 034 BROOKS | 9,460 |
| 02 036 DUCHESS | 410 |
| 02 038 ROSEMARY | 320 |
| 02 039 BASSANO | 1,205 |
| 05 001 VULCAN COUNTY NO. 2 | 3,640 |
| 05 002 CARMANGAY | 230 |
| 05 004 CHAMPION | 365 |
| 05 006 VULCAN | 1,430 |
| 05 008 LOMOND | 180 |
| 05 009 MILO | 125 |
| 05 011 ARROWWOOD | 155 |
| 05 012 WHEATLAND COUNTY NO. 16 | 5,410 |
| 05 014 CLUNY | 90 |
| 05 016 GLEICHEN | 335 |
| 05 018 STRATHMORE | 3,565 |
| 05 019 HUSSAR | 160 |
| 05 021 STANDARD | 325 |
| 05 022 ROCKYFORD | 310 |
| 05 802 BLACKFOOT 146 | 2,310 |

MAPPED AREA 6 TOTAL POPULATION = 636,680

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 06 016 CALGARY | 636,085 |
| 06 017 CHESTERMERE LAKE | 595 |

# CENSUS SUB-DIVISIONS CONTAINED IN EACH MAPPED AREA

MAPPED AREA 7 TOTAL POPULATION = 15,535

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 15 013 IMPROVEMENT DISTRICT NO. 5 | 290 |
| 15 017 IMPROVEMENT DISTRICT NO. 8 | 1,090 |
| 15 023 CANMORE | 4,175 |
| 15 027 GHOST LAKE | N/A |
| 15 030 WAIPAROUS | N/A |
| 15 032 IMPROVEMENT DISTRICT NO. 9 | 6,060 |
| 15 037 IMPROVEMENT DISTRICT NO. 12 | 3,920 |
| 15 802 STONEY 142, 143, 144 | N/A |

MAPPED AREA 8 TOTAL POPULATION = 58,270

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 06 001 FOOTHILLS NO. 31 | 9,395 |
| 06 002 CAYLEY | 220 |
| 06 004 BLACKIE | 280 |
| 06 006 HIGH RIVER | 5,090 |
| 06 008 LONGVIEW | 275 |
| 06 009 TURNER VALLEY | 1,240 |
| 06 011 BLACK DIAMOND | 1,490 |
| 06 012 OKOTOKS | 5,215 |
| 06 014 ROCKY VIEW NO. 44 | 17,480 |
| 06 019 COCHRANE | 4,200 |
| 06 021 AIRDRIE | 10,390 |
| 06 022 IRRICANA | 680 |
| 06 024 BEISEKER | 495 |
| 06 026 CROSSFIELD | 1,400 |
| 06 803 EDEN VALLEY 216 | 420 |
| 06 804 SARCEE 145 | N/A |

MAPPED AREA 9 TOTAL POPULATION = 12,370

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 04 001 ACADIA NO. 34 | 630 |
| 04 004 SPECIAL AREA NO. 2 | 2,530 |
| 04 006 EMPRESS | 220 |
| 04 011 HANNA | 3,015 |
| 04 012 SPECIAL AREA NO. 3 | 1,710 |
| 04 014 OYEN | 960 |
| 04 016 CEREAL | 255 |
| 04 019 YOUNGSTOWN | 310 |
| 04 020 SPECIAL AREA NO. 4 | 1,780 |
| 04 021 VETERAN | 290 |
| 04 022 CONSORT | 670 |

MAPPED AREA 10 TOTAL POPULATION = 40,935

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 05 024 IMPROVEMENT DISTRICT NO. 7 | 1,130 |
| 05 029 DRUMHELLER | 6,385 |
| 05 031 STARLAND NO. 47 | 2,110 |
| 05 034 DELIA | 190 |
| 05 036 MUNSON | 140 |
| 05 038 MORRIN | 255 |
| 05 039 RUMSEY | 90 |
| 05 041 KNEEHILL NO. 48 | 5,000 |
| 05 042 CARBON | 435 |
| 05 044 ACME | 450 |
| 05 046 LINDEN | 425 |
| 05 048 THREE HILLS | 2,525 |
| 05 049 TROCHU | 905 |
| 05 051 TORRINGTON | 210 |
| 06 028 MOUNTAIN VIEW COUNTY NO. 17 | 8,900 |
| 06 029 CARSTAIRS | 1,625 |
| 06 031 CREMONA | 365 |
| 06 032 DIDSBURY | 3,205 |
| 06 034 OLDS | 4,895 |
| 06 036 SUNDRE | 1,695 |

MAPPED AREA 11 TOTAL POPULATION = 19,810

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 07 001 PROVOST NO. 52 | 2,715 |
| 07 002 PROVOST | 1,740 |
| 07 004 CZAR | 165 |
| 07 006 HUGHENDEN | 245 |
| 07 008 AMISK | 220 |
| 07 011 PAINTEARTH COUNTY NO. 18 | 2,430 |
| 07 012 CORONATION | 1,325 |
| 07 014 CASTOR | 1,045 |
| 07 016 HALKIRK | 145 |
| 07 049 WAINWRIGHT NO. 61 | 3,920 |
| 07 051 CHAUVIN | 350 |
| 07 052 EDGERTON | 390 |
| 07 054 WAINWRIGHT | 4,655 |
| 07 056 IRMA | 465 |

MAPPED AREA 12 TOTAL POPULATION = 31,175

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 07 019 STETTLER COUNTY NO. 6 | 5,170 |
| 07 021 BIG VALLEY | 290 |
| 07 022 GADSBY | N/A |
| 07 024 BOTHA | 170 |
| 07 026 STETTLER | 5,140 |
| 07 027 WHITE SANDS | N/A |
| 07 028 ROCHON SANDS | N/A |
| 07 029 DONALDA | 250 |
| 08 022 LACOMBE COUNTY NO. 14 | 8,905 |
| 08 023 BIRCHCLIFF | 45 |
| 08 024 ECKVILLE | 840 |
| 08 025 HALF MOON BAY | 40 |
| 08 026 BENTLEY | 825 |
| 08 028 GULL LAKE | 80 |
| 08 029 BLACKFALDS | 1,685 |
| 08 031 LACOMBE | 6,080 |
| 08 032 CLIVE | 350 |
| 08 034 ALIX | 795 |
| 08 036 MIRROR | 510 |

# CENSUS SUB-DIVISIONS CONTAINED IN EACH MAPPED AREA

MAPPED AREA 13 TOTAL POPULATION = 81,365

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 08 001 RED DEER COUNTY NO. 23 | 13,915 |
| 08 002 ELNORA | 245 |
| 08 004 DELBURNE | 560 |
| 08 005 JARVIS BAY | 70 |
| 08 006 BOWDEN | 985 |
| 08 008 INNISFAIL | 5,525 |
| 08 009 PENHOLD | 1,590 |
| 08 011 RED DEER | 54,430 |
| 08 012 SYLVAN LAKE | 3,940 |
| 08 013 NORGLENWOLD | 105 |

MAPPED AREA 14 TOTAL POPULATION = 16,005

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 09 002 CLEARWATER NO. 99 | 9,850 |
| 09 010 CAROLINE | 340 |
| 09 015 ROCKY MOUNTAIN HOUSE | 5,190 |
| 09 806 O'CHIESE 203 | 280 |
| 09 809 SUNCHILD 202 | 235 |
| 09 810 BIG HORN 144A | 110 |

MAPPED AREA 15 TOTAL POPULATION = 32,500

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 07 031 FLAGSTAFF COUNTY NO. 29 | 4,395 |
| 07 032 ALLIANCE | 200 |
| 07 034 GALAHAD | 175 |
| 07 036 FORESTBURG | 930 |
| 07 038 HEISLER | 220 |
| 07 039 DAYSLAND | 680 |
| 07 041 STROME | 270 |
| 07 042 KILLAM | 1,075 |
| 07 044 SEDGEWICK | 895 |
| 07 046 LOUGHEED | 250 |
| 07 048 HARDISTY | 625 |
| 10 001 CAMROSE COUNTY NO. 22 | 7,470 |
| 10 002 BASHAW | 835 |
| 10 003 ROSALIND | 200 |
| 10 004 FERINTOSH | 120 |
| 10 006 EDBERG | 120 |
| 10 008 NEW NORWAY | 290 |
| 10 009 BAWLF | 365 |
| 10 011 CAMROSE | 12,950 |
| 10 012 BITTERN LAKE | 135 |
| 10 014 HAY LAKES | 300 |

MAPPED AREA 16 TOTAL POPULATION = 37,055

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 08 038 PONOKA COUNTY NO. 3 | 7,740 |
| 08 039 PONOKA | 5,460 |
| 08 042 PARKLAND BEACH | 65 |
| 08 044 RIMBEY | 1,785 |
| 08 811 SAMSON 137 | N/A |
| 08 812 SAMSON 137A | N/A |
| 08 813 MONTANA 139 | N/A |
| 11 001 WETASKIWIN COUNTY NO. 10 | 9,515 |
| 11 002 WETASKIWIN | 10,065 |
| 11 003 ARGENTIA BEACH | N/A |
| 11 004 GRANDVIEW | 65 |
| 11 005 POPLAR BAY | 40 |
| 11 006 CRYSTAL SPRINGS | N/A |
| 11 008 MA-ME-O BEACH | 90 |
| 11 009 SILVER BEACH | N/A |
| 11 011 MILLET | 1,545 |
| 11 801 ERMINESKIN 138 | N/A |
| 11 802 PIGEON LAKE 138A | N/A |
| 11 803 LOUIS BULL 138B | 685 |

# CENSUS SUB-DIVISIONS CONTAINED IN EACH MAPPED AREA

MAPPED AREA 17 TOTAL POPULATION = 56,845

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 10 016 BEAVER COUNTY NO. 9 | 5,400 |
| 10 018 TOFIELD | 1,490 |
| 10 019 RYLEY | 500 |
| 10 021 HOLDEN | 410 |
| 10 022 VIKING | 1,170 |
| 10 026 MINBURN COUNTY NO. 27 | 3,905 |
| 10 028 VEGREVILLE | 5,280 |
| 10 029 LAVOY | 135 |
| 10 031 INNISFREE | 210 |
| 10 032 MINBURN | 140 |
| 10 034 MANNVILLE | 775 |
| 10 036 VERMILION RIVER COUNTY NO. 24 | 8,095 |
| 10 038 PARADISE VALLEY | 180 |
| 10 039 LLOYDMINSTER (PART) | 10,190 |
| 10 041 KITSCOTY | 630 |
| 10 042 VERMILION | 3,910 |
| 10 044 MARWAYNE | 505 |
| 10 046 DEWBERRY | 210 |
| 10 048 TWO HILLS COUNTY NO. 21 | 3,080 |
| 10 049 DERWENT | 145 |
| 10 051 MYRNAM | 385 |
| 10 052 TWO HILLS | 1,130 |
| 10 054 HAIRY HILL | 60 |
| 10 056 WILLINGDON | 370 |
| 10 058 LAMONT COUNTY NO. 30 | 4,430 |
| 10 059 ANDREW | 500 |
| 10 061 MUNDARE | 540 |
| 10 062 CHIPMAN | 225 |
| 10 064 LAMONT | 1,575 |
| 10 066 BRUDERHEIM | 1,115 |
| 10 068 IMPROVEMENT DISTRICT NO. 13 | N/A |
| 10 805 MAKAOO (PART) 120 | 155 |

MAPPED AREA 18 TOTAL POPULATION = 61,780

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 11 052 STRATHCONA COUNTY NO. 20 | 49,805 |
| 11 056 FORT SASKATCHEWAN | 11,975 |

MAPPED AREA 19 TOTAL POPULATION = 574,005

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 11 061 EDMONTON | 574,005 |

MAPPED AREA 20 TOTAL POPULATION = 86,945

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 11 012 LEDUC COUNTY NO. 25 | 13,225 |
| 11 013 BEAUMONT | 3,930 |
| 11 014 NEW SAREPTA | 305 |
| 11 016 LEDUC | 13,120 |
| 11 018 DEVON | 3,705 |
| 11 019 CALMAR | 1,075 |
| 11 020 SUNDANCE BEACH | N/A |
| 11 021 THORSBY | 625 |
| 11 022 ITASKA BEACH | N/A |
| 11 023 GOLDEN DAYS | 70 |
| 11 024 WARBURG | 465 |
| 11 026 BRETON | 430 |
| 11 031 DRAYTON VALLEY | 5,275 |
| 11 034 PARKLAND COUNTY NO. 31 | 24,415 |
| 11 036 ENTWISTLE | 475 |
| 11 038 SEBA BEACH | 130 |
| 11 039 BETULA BEACH | N/A |
| 11 041 POINT ALISON | N/A |
| 11 042 LAKEVIEW | N/A |
| 11 044 KAPASIWIN | N/A |
| 11 045 WABAMUN | 590 |
| 11 046 EDMONTON BEACH | 300 |
| 11 048 STONY PLAIN | 5,810 |
| 11 049 SPRUCE GROVE | 11,950 |
| 11 804 STONY PLAIN 135 | 505 |
| 11 805 ALEXANDER 134 | N/A |
| 11 806 WABAMUN 133A | 545 |

# CENSUS SUB-DIVISIONS CONTAINED IN EACH MAPPED AREA

MAPPED AREA 21 TOTAL POPULATION = 39,065

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 14 002 EVANSBURG | 740 |
| 14 003 IMPROVEMENT DISTRICT NO. 14 | 8,245 |
| 14 004 WILDWOOD | 390 |
| 14 019 HINTON | 8,620 |
| 14 024 EDSON | 7,325 |
| 18 002 FOX CREEK | 2,075 |
| 18 005 GRANDE CACHE | 3,640 |
| 18 015 IMPROVEMENT DISTRICT NO. 16 | 5,340 |
| 18 018 VALLEYVIEW | 1,980 |
| 18 816 STURGEON LAKE 154 | 555 |
| 19 815 HORSE LAKES 152B | 155 |

MAPPED AREA 22 TOTAL POPULATION = 43,920

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 12 004 BONNYVILLE NO. 87 | 10,375 |
| 12 006 COLD LAKE | 3,175 |
| 12 008 GRAND CENTRE | 3,655 |
| 12 009 BONNYVILLE | 5,465 |
| 12 011 BONNYVILLE BEACH | 50 |
| 12 012 GLENDON | 490 |
| 12 013 PELICAN NARROWS | 55 |
| 12 014 ST. PAUL COUNTY NO. 19 | 6,595 |
| 12 016 ELK POINT | 1,310 |
| 12 018 ST. PAUL | 5,050 |
| 12 020 HORSESHOE BAY | N/A |
| 12 022 SMOKY LAKE COUNTY NO. 13 | 2,790 |
| 12 024 VILNA | 320 |
| 12 026 WASKATENAU | 270 |
| 12 028 WARSPITE | 115 |
| 12 029 SMOKY LAKE | 1,055 |
| 12 031 IMPROVEMENT DIST. NO. 18 | N/A |
| 12 802 UNIPOUHEOS 121 | 425 |
| 12 804 PUSKIAKIWENIN 122 | 225 |
| 12 806 SADDLE LAKE 125 | 1,995 |
| 12 808 WHITE FISH LAKE 128 | N/A |
| 12 810 COLD LAKE 149 | N/A |
| 12 811 KEHIWIN 123 | 505 |
| 12 813 COLD LAKE 149A | N/A |
| 12 815 COLD LAKE 149B | N/A |

MAPPED AREA 23 TOTAL POPULATION = 60,625

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 11 059 STURGEON NO. 90 | 14,005 |
| 11 062 ST. ALBERT | 36,700 |
| 11 064 GIBBONS | 2,320 |
| 11 066 BON ACCORD | 1,345 |
| 11 068 MORINVILLE | 5,375 |
| 11 069 LEGAL | 880 |

MAPPED AREA 24 TOTAL POPULATION = 30,290

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 13 001 LAC STE. ANNE COUNTY NO. 28 | 7,775 |
| 13 002 MAYERTHORPE | 1,420 |
| 13 003 NAKAMUN PARK | N/A |
| 13 004 SANGUDO | 390 |
| 13 005 VAL QUENTIN | 110 |
| 13 006 WEST COVE | 45 |
| 13 007 YELLOWSTONE | 80 |
| 13 008 ROSS HAVEN | 65 |
| 13 009 CASTLE ISLAND | N/A |
| 13 010 SILVER SANDS | 75 |
| 13 011 SUNSET POINT | 85 |
| 13 012 ALBERTA BEACH | 420 |
| 13 014 ONOWAY | 630 |
| 13 015 SOUTH VIEW | 45 |
| 13 016 SANDY BEACH | 100 |
| 13 018 BARRHEAD COUNTY NO. 11 | 5,730 |
| 13 019 BARRHEAD | 3,990 |
| 13 026 FORT ASSINIBOINE | 215 |
| 13 029 IMPROVEMENT DISTRICT NO. 15 | 2,830 |
| 13 030 WHITECOURT | 5,740 |
| 13 811 ALEXIS 133 | 545 |

# CENSUS SUB-DIVISIONS CONTAINED IN EACH MAPPED AREA

MAPPED AREA 25 TOTAL POPULATION = 26,570

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 11 065 REDWATER | 2,000 |
| 13 028 WESTLOCK NO. 92 | 7,000 |
| 13 031 WESTLOCK | 4,540 |
| 13 032 CLYDE | 440 |
| 13 033 LARKSPUR | N/A |
| 13 036 THORHILD COUNTY NO. 7 | 3,070 |
| 13 039 RADWAY | 160 |
| 13 042 THORHILD | 465 |
| 13 044 ATHABASCA COUNTY NO. 12 | 5,995 |
| 13 045 MEWATHA BEACH | N/A |
| 13 046 BOYLE | 665 |
| 13 047 SUNSET BEACH | N/A |
| 13 048 ATHABASCA | 1,980 |
| 13 049 ISLAND LAKE | 90 |
| 13 051 ISLAND LAKE SOUTH | 30 |
| 13 053 BONDISS | 65 |
| 13 055 SOUTH BAPTISTE | 70 |
| 13 057 WEST BAPTISTE | N/A |
| 13 059 WHITE GULL | N/A |
| 13 061 WHISPERING HILLS | N/A |

MAPPED AREA 26 TOTAL POPULATION = 48,845

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 16 030 IMPROVEMENT DIST. NO. 18 | 10,520 |
| 16 032 LAC LA BICHE | 2,580 |
| 16 034 PLAMONDON | 270 |
| 16 048 FORT MCMURRAY | 34,945 |
| 16 051 IMPROVEMENT DISTRICT NO. 24 | 270 |
| 16 809 BEAVER LAKE 131 | N/A |
| 16 817 JANVIER 194 | 160 |
| 16 820 HEART LAKE 167 | N/A |
| 16 821 GREGOIRE LAKE 176 | N/A |
| 16 822 GREGOIRE LAKE 176A | 100 |
| 16 823 CLEARWATER 175 | N/A |

MAPPED AREA 27 TOTAL POPULATION = 42,785

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 17 021 HIGH PRAIRIE | 2,810 |
| 17 024 SWAN HILLS | 2,395 |
| 17 025 IMPROVEMENT DISTRICT NO. 17 | 12,540 |
| 17 028 KINUSO | 285 |
| 17 029 SLAVE LAKE | 5,430 |
| 17 039 NAMPA | 455 |
| 17 076 IMPROVEMENT DISTRICT NO. 22 | 4,435 |
| 17 078 MANNING | 1,125 |
| 17 817 JEAN BAPTISTE GAMBLER 183 | 95 |
| 17 818 WABASCA 166 | N/A |
| 17 819 WABASCA 166A | 325 |
| 17 821 WABASCA 166B | 40 |
| 17 822 WABASCA 166C | 90 |
| 17 823 WABASCA 166D | 330 |
| 17 824 UTIKOOMAK LAKE 155 | 335 |
| 17 827 UTIKOOMAK LAKE 155A | 50 |
| 17 828 DRIFT PILE RIVER 150 | 430 |
| 17 829 SUCKER CREEK 150A | 310 |
| 17 830 PAKASHAN 150D | N/A |
| 17 831 SWAN RIVER 150E | 185 |
| 17 832 SAWRIDGE 150G | N/A |
| 17 833 SAWRIDGE 150H | N/A |
| 17 836 FREEMAN 150B | N/A |
| 19 038 PEACE RIVER | 6,285 |
| 19 071 PEACE NO. 135 | 1,535 |
| 19 072 BERWYN | 675 |
| 19 074 GRIMSHAW | 2,590 |
| 19 826 DUNCAN'S 151A | 35 |

# CENSUS SUB-DIVISIONS CONTAINED IN EACH MAPPED AREA

MAPPED AREA 28 TOTAL POPULATION = 65,360

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 17 062 IMPROVEMENT DISTRICT NO. 21 | 3,000 |
| 17 064 HINES CREEK | 505 |
| 17 825 CLEAR HILLS 152C | N/A |
| 19 006 GRANDE PRAIRIE COUNTY NO. 1 | 12,040 |
| 19 008 HYTHE | 660 |
| 19 009 BEAVERLODGE | 1,815 |
| 19 011 WEMBLEY | 1,225 |
| 19 012 GRANDE PRAIRIE | 26,455 |
| 19 014 SEXSMITH | 1,245 |
| 19 041 SMOKY RIVER NO. 130 | 2,870 |
| 19 042 MCLENNAN | 1,000 |
| 19 044 DONNELLY | 425 |
| 19 046 FALHER | 1,190 |
| 19 048 GIROUXVILLE | 385 |
| 19 049 IMPROVEMENT DISTRICT NO. 19 | 1,635 |
| 19 051 WANHAM | 235 |
| 19 052 EAGLESHAM | 210 |
| 19 054 SPIRIT RIVER NO. 133 | 835 |
| 19 056 RYCROFT | 670 |
| 19 058 SPIRIT RIVER | 1,105 |
| 19 059 IMPROVEMENT DISTRICT NO. 20 | 2,935 |
| 19 066 FAIRVIEW NO. 136 | 1,885 |
| 19 068 FAIRVIEW | 3,035 |

MAPPED AREA 29 TOTAL POPULATION = 13,420

| CENSUS SUB-DIVISION | POPULATION |
|---|---|
| 17 093 HIGH LEVEL | 2,990 |
| 17 095 IMPROVEMENT DISTRICT NO. 23 | 6,910 |
| 17 097 RAINBOW LAKE | 670 |
| 17 835 FOX LAKE 162 | 825 |
| 17 837 JOHN D'OR PRAIRIE 215 | 505 |
| 17 838 TALL CREE 173 | 110 |
| 17 840 TALL CREE 173A | 110 |
| 17 841 BEAVER RANCH 163 | N/A |
| 17 842 BOYER 164 | 90 |
| 17 843 CHILD LAKE 164A | 40 |
| 17 845 HAY LAKE 209 | 750 |
| 17 848 BUSHE RIVER 207 | 85 |
| 17 849 UPPER HAY RIVER 212 | 335 |

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